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**THE FACTS CONCERNING
THE PEOPLE, INDUSTRIES
AND SCHOOLS OF HAMMOND**

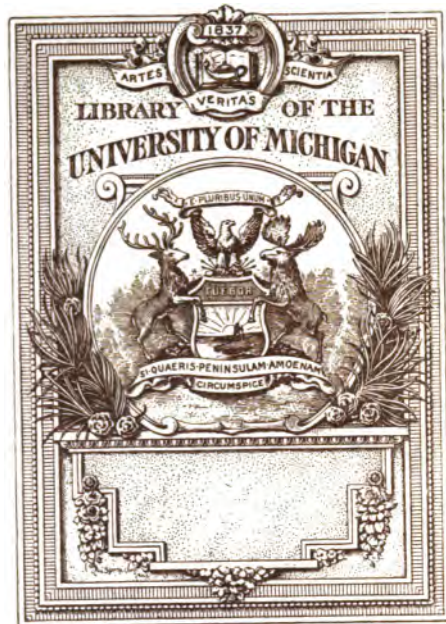
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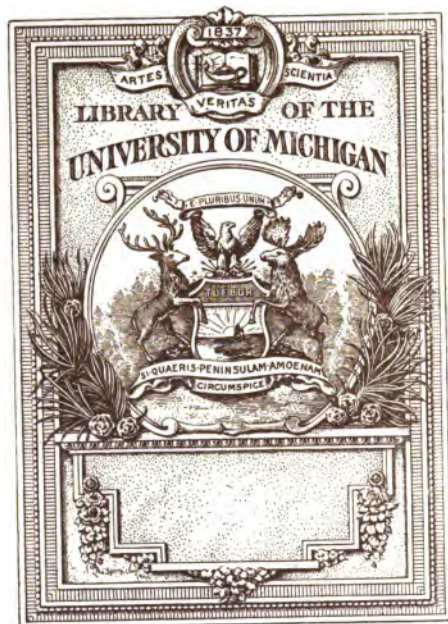
ROBERT J. LEONARD

HAMMOND, INDIANA

APRIL 15, 1915



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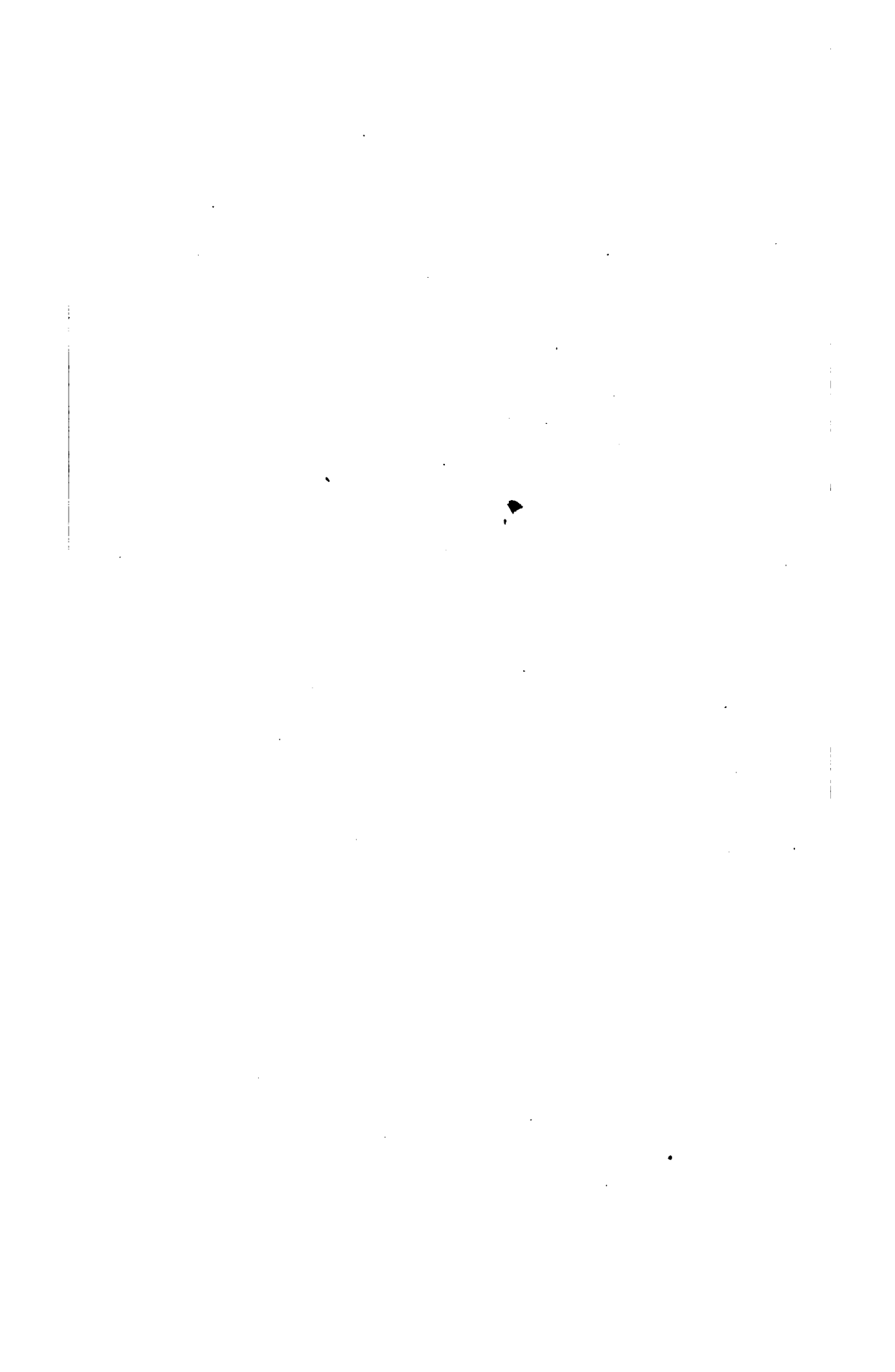
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SOME FACTS CONCERNING THE PEOPLE, INDUSTRIES AND SCHOOLS OF HAMMOND

AND A

**SUGGESTED PROGRAM FOR ELEMENTARY
INDUSTRIAL, PREVOCATIONAL
AND VOCATIONAL EDUCATION**

ROBERT J. LEONARD

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1

HAMMOND, INDIANA

APRIL 15, 1915



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INTRODUCTION

This study of the Hammond situation was made possible by the extended services of the Department of Industrial Education of Indiana University working in co-operation with the Vocational Division of the State Department of Public Instruction.

Only those facts concerning the people, industries and schools of Hammond were gathered and recorded which were essential in determining the provisions which should be made for elementary industrial, pre-vocational and vocational departments and courses.

That the study was made at a propitious time is indicated by the facts that the schools are being reorganized upon the basis of a seven year elementary and four and five year secondary course, and that the long period of litigation, which has restrained the Board of Education from building the Industrial High School is now over, and provisions for its immediate construction are under way.

The facts concerning the people of Indiana were taken from the Reports of the 1910 United States Census; those concerning the industries of Hammond, from the Reports of the 1910 United States Census, but primarily by personal factory visits; those concerning school enrollment and classification of pupils were derived from schedules made out by teachers and principals; those concerning the work of young people under 17 years of age, from a study of working permits and schedules made out by the workers; those concerning the courses as now taught, by a study of the course outlines, class visitation, and conferences with teachers and supervisors; and those concerning the night school by class visitation, conferences with teachers and principals and schedules made out by teachers. The compilation of facts relating to working permits and school histories of the boys and girls to whom permits were issued, was greatly facilitated by the complete school histories of all pupils on file in the Superintendent's office. The comprehensive system of school records was also of great assistance in the study of the enrollment, classifica-

tion, retardation and elimination of pupils. The appendix contains reproduced copies of all forms used in the collection of data, as well as a description of the methods of gathering and compiling facts.

The accuracy of the descriptions of present courses is assured, as the Superintendent, principals, supervisors and teachers carefully reviewed all statements concerning their work. Likewise those engaged in manufacturing and industrial pursuits carefully reviewed the Chapter on the "Industries of Hammond."

The recommendations for future courses, departments and equipments, though in the main specifically proposed by the writer, are really conference measures, as all parts of the sections bearing upon future work were first submitted to the Superintendent of Schools, principals, supervisors and special teachers, after which many conferences were held, and nothing has been included as a specific recommendation that has not been agreed upon in conference. All the charts were prepared in the High School Mechanical Drawing Department.

The sympathetic study of the whole situation was made possible by the co-operation of two groups of individuals: those connected with the schools, Superintendent C. M. McDaniel and the office force, the principals, supervisors and special teachers, who heartily co-operated in every possible manner; and those engaged in manufacturing and industrial pursuits, who opened their plants and factories and were most generous and helpful in every way in gathering and furnishing the necessary information. We here express to them our heartiest appreciation and thanks.

CHAPTER I

FACTS CONCERNING THE PEOPLE OF HAMMOND

Population of Lake County. The City of Hammond is located in Lake County, which is in the extreme northwestern part of the State of Indiana. The dominant interests of this section of the State are manufacturing, all the cities of the entire county being devoted to various industrial pursuits. The population of Lake County increased 119 per cent. during the period from 1900 to 1910, which was a greater percentage of increase than in any other county in Indiana. According to the United States Census Reports, the population of the county in 1900 was 37,392, and in 1910, 82,864, the net increase during the decade being 45,472. Within the county are four cities with a total population in 1900 of 63,412; and minor divisions with a population of 19,452. The population of the cities in 1910 was as follows: Hammond 20,925; East Chicago 19,098; Gary 16,802, and Whiting 6,589. From 1900 to 1910 the population of Hammond increased 8,549 or 69.15 per cent., and is now estimated at about 30,000. As a city, Hammond's rate of increase in population from 1900 to 1910 was far greater than that of other Indiana cities of the same class, as noted in Table 1.

TABLE 1

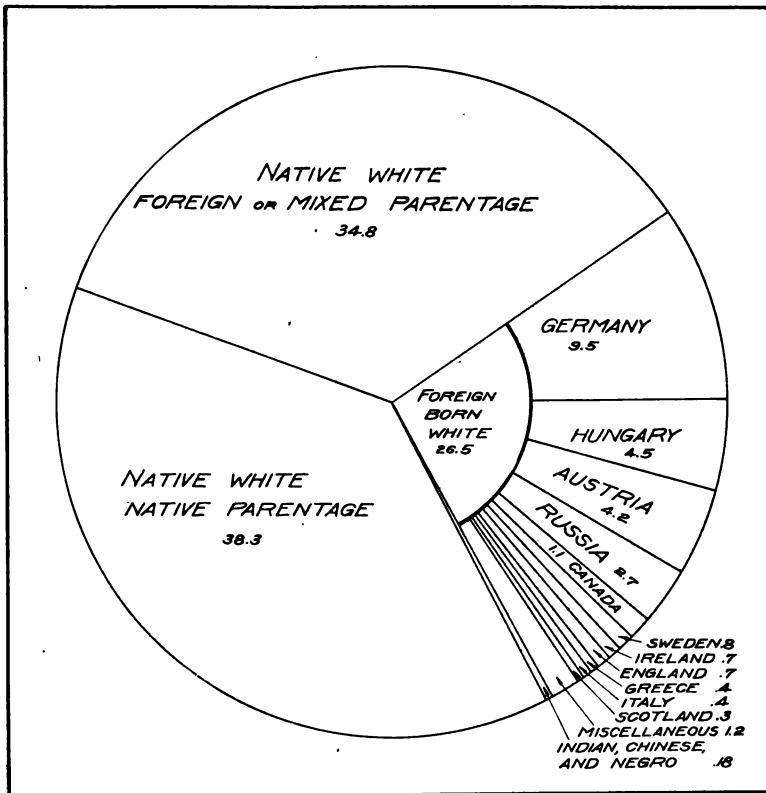
Growth of Hammond and Other Indiana Cities, 1900-1910

CITIES	Population		Increase 1900 to 1910	
	1910 Census	1900 Census	Number	Per cent
Hammond.....	20,925	12,376	8,549	69.15
Richmond.....	22,324	18,226	4,098	22.46
Muncie.....	24,005	20,924	3,081	14.72
Anderson.....	22,476	20,178	2,298	11.38
Lafayette.....	20,081	18,116	1,965	10.84
New Albany.....	20,629	20,628	1	.....

Composition of Population. Of the entire population of Hammond in 1910, 8,025 or 38.35 per cent. were native white of native parents; 7,290 or 34.84 per cent., native white of foreign or mixed parents; 5,553 or 26.54 per cent., of foreign parents; 40 or .19 per cent., negroes; and 17 or .08 per cent., Indians, Chinese or Japanese. This distribution is readily comprehended from Chart 1.*

CHART 1

Composition of Population of Hammond



* The form for Chart 1 was copied from the Report of a Survey of the School System of Butte, Montana, 1914, page 10.

TABLE 2
Composition of Population of Hammond and Five Other Indiana Cities 1910

CITIES	Popu- lation 1910 Census	Native White of Native Parentage		Native White of Foreign or Mixed Parentage		Foreign Born White		Negro		Indian, Chinese and Japanese	
		Number	Per cent.	Number	Per cent.	Number	Per cent.	Number	Per cent.	Number	Per cent.
Hammond.....	20,925	8,025	38.35	7,290	34.84	5,553	26.54	40	.19	17	.08
Lafayette.....	20,081	12,695	63.22	5,019	24.99	2,019	10.05	338	1.68	10	.05
New Albany.....	20,629	14,281	69.23	3,907	18.94	858	4.15	1,583	7.68	.....	.....
Richmond.....	22,324	16,076	72.01	3,874	17.35	1,173	5.26	1,191	5.34	10	.04
Muncie.....	24,005	19,876	82.80	2,277	9.49	840	3.50	1,005	4.15	7	.03
Anderson.....	22,476	18,900	84.09	2,061	9.18	977	4.35	532	2.37	6	.....

Concerning the nativity of the Hammond population, compared with other Indiana cities of the same class, it will be noted from Table 2 that the percentage of native white of native parents in Hammond is only about one-half that of other cities with which comparison is made; that the percentage of native white of foreign or mixed parentage is somewhat greater than all and much greater than some of the cities; that the percentage of foreign born is twice as great as all and six times greater than some; and that the percentage of negroes is much less than in all the cities compared. It will be noted that nearly 85 per cent. of the entire population is of direct foreign descent.

Nativity of Foreign Born. Of the foreign born population residing in Hammond in 1910, the greatest number were from Germany, Hungary ranking second, and Austria third. Table 3 records the number from each foreign country residing in Hammond in 1910, in the descending order of importance. It is probable, however, that the order has changed in the period of time subsequent to the taking of the census.

TABLE 3

Nativity of Foreign Born Residents of Hammond, 1910

Country	Number	Country	Number
Germany.....	1,987	Italy.....	84
Hungary.....	920	Scotland.....	67
Austria.....	894	Switzerland.....	52
Russia.....	568	Norway.....	45
Canada.....	236	Wales.....	38
Sweden.....	171	Holland.....	31
Ireland.....	141	Denmark.....	28
England.....	140	France.....	12
Greece.....	87	Other Foreign Countries.....	52

Age Groups of Native and Foreign Born. In respect to native born population, Hammond is characterized by a larger percentage of children, youths, men and women in the prime of life, and a much smaller percentage of men and women past the productive period, than the average for the State. This is per-

haps due to the fact that the opportunities for suitable employment for men past the prime of life are relatively few in Hammond. On the other hand, concerning the foreign born whites, Hammond has a much smaller percentage of children and a much larger percentage of men and women in the productive period and a larger percentage of men over forty than the average for the State. In relation to the school problems, this indicates, in general, the great need for education for adult foreigners, as contrasted to the need for education for native born children. Tables 4 and 5 show age distributions of the native and foreign population in Hammond and in the State of Indiana. Chart 2 pictures these facts.

CHART 2

Number in Each Age Group of Natives and Foreign Born in Hammond and Indiana

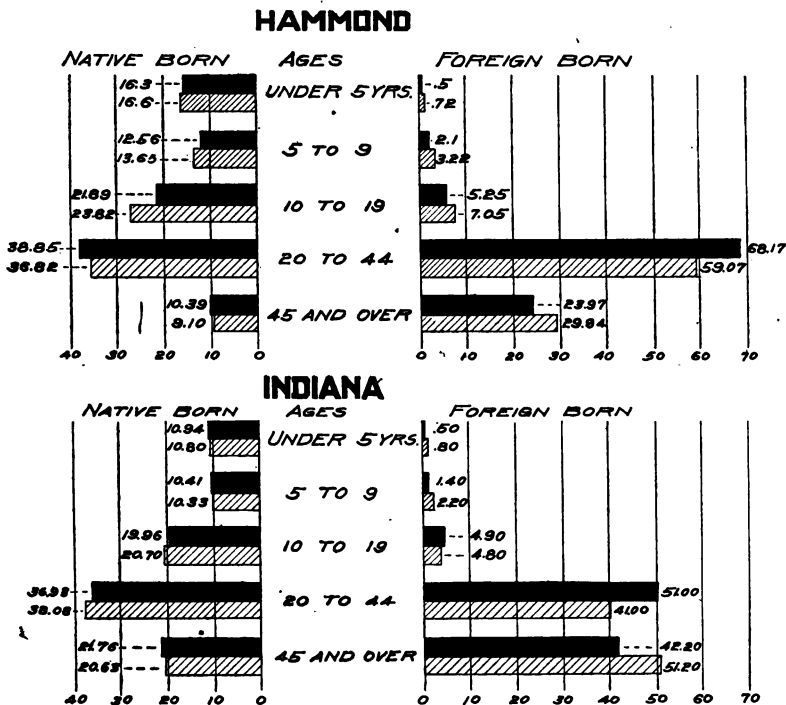


TABLE 4
Age Groups of Native and Foreign Born Living in Hammond

Native Born Males		AGE GROUPS	Foreign Born Males	
Per cent.	Number		Number	Per cent.
100.00	8,007	..... Total	3,476	100.00
16.30	1,309	..... Under 5 years	17	.50
12.56	1,005	..... 5 to 9 years	73	2.10
21.89	1,753	..... 10 to 19 years	183	5.25
38.85	3,110	..... 20 to 44 years	2,363	68.17
10.39	830	..... 45 years and over ...	831	23.97

Native Born Females		AGE GROUPS	Foreign Born Females	
Per cent.	Number		Number	Per cent.
100.00	7,308	..... Total	2,068	100.00
16.60	1,213	..... Under 5 years	15	.72
13.65	998	..... 5 to 9 years	67	3.22
23.82	1,741	..... 10 to 19 years	147	7.05
36.82	2,692	..... 20 to 44 years	1,232	59.07
9.10	664	..... 45 years and over ...	625	29.94

TABLE 5
Age Groups of Native and Foreign Born Living in Indiana

Native Born Males		AGE GROUPS	Foreign Born Males	
Per cent.	Number		Number	Per cent.
100.00	1,254,609	..... Total	97,183	100.00
10.94	137,228	..... Under 5 years	495	.50
10.41	130,594	..... 5 to 9 years	1,391	1.40
19.96	250,458	..... 10 to 19 years	4,785	4.90
36.93	463,390	..... 20 to 44 years	49,521	51.00
21.76	272,939	..... 45 years and over ...	40,991	42.20

Native Born Females		AGE GROUPS	Foreign Born Females	
Per cent.	Number		Number	Per cent.
100.00	1,226,030	..... Total	62,139	100.00
10.80	132,519	..... Under 5 years	490	.80
10.33	126,672	..... 5 to 9 years	1,350	2.20
20.70	245,954	..... 10 to 19 years	2,973	4.80
38.08	466,875	..... 20 to 44 years	25,435	41.00
20.63	253,920	..... 45 years and over ...	31,891	51.20

Sex Distribution. Males constitute about 55 per cent. of the total population of Hammond, which is almost 5 per cent. more than in other Indiana cities of the same class. Table 6 shows the sex distributions of residents of Hammond and other Indiana cities.

TABLE 6

Comparative Sex Distribution of Residents of Hammond and Other Cities

CITIES	Males		Females	
	Number	Per cent.	Number	Per cent.
Hammond.....	11,507	54.94	9,418	45.06
Anderson.....	11,361	50.55	11,115	49.45
Richmond.....	11,111	50.21	11,213	49.79
Muncie.....	12,122	50.49	11,883	49.51
Lafayette.....	9,756	48.53	10,325	51.47
New Albany.....	9,929	48.08	10,700	51.92

*Illiteracy.** In 1910, 4.43 per cent. of the total population of Hammond was rated as illiterate, a percentage greater than other Indiana cities of the same class. As recorded in the Census, all but 40 of the 720 illiterates were foreign born, and these 40 native born illiterates constitute but 39 per cent. of the native population of 10 years and over, indicating a very much smaller percentage of illiteracy among the native born of Hammond than the other Indiana cities. This tends to indicate very definitely that the schools of Hammond are succeeding in enrolling and educating the children of the city, especially those of both native and foreign extraction, in a far greater degree than other cities, and that few illiterate native white families are attracted to this region. The low percentage of illiteracy among the native born is certainly commendable to the schools, because of the great number of direct foreign descent in attendance. Considering, however, the amount of illiteracy among adult foreigners, the need for continued provision for classes in English and other general subjects is clearly indicated. The comparative facts of illiteracy for all classes of the population are recorded in Table 7.

* According to the census, an illiterate is a person over 10 years of age unable to write regardless of his ability to read.

TABLE 7
Illiteracy in Hammond and Other Indiana Cities in 1910*

CITIES	Total Population Over 10 Years of Age			Native White Over 10 Years of Age			Foreign Born White Over 10 Years of Age		
	Popula- tion	Illiterates		Popula- tion	Illiterates		Popula- tion	Illiterates	
		Num- ber	Per cent.		Num- ber	Per cent.		Num- ber	Per cent.
Hammond.....	16,624	720	4.43	10,790	40	.39	5,381	675	12.54
Anderson.....	18,325	462	2.52	16,898	298	1.17	966	119	11.28
Lafayette.....	17,071	373	2.13	14,800	137	.92	1,989	205	10.30
Muncie.....	19,685	499	2.53	17,982	278	1.54	837	105	12.54
New Albany...	17,125	550	3.21	14,949	229	1.53	855	57	6.63
Richmond.....	18,585	261	1.40	16,423	101	.61	1,158	81	7.00

*Illiteracy among others than white population is not recorded.

General Educational Needs. Located in a rapidly growing city, in the most rapidly growing industrial center in Indiana, the Schools of Hammond are facing the problem of educating children, the majority of whose parents are of foreign or mixed extraction, as well as educating a large foreign born adult population, among which there is considerable illiteracy.

CHAPTER II

THE INDUSTRIES OF HAMMOND

PART 1. IMPORTANCE AND SCOPE OF INDUSTRIES

Importance of Hammond Industries. Hammond is primarily a manufacturing city. As previously indicated, the region in which it is located is largely given over to various types of industrial pursuits. In the last ten years the city's industrial growth has been very rapid. In 1904, according to the United States Census Reports, there were 38 manufacturing establishments employing 1,703 workers, while in 1909 there were 49 establishments employing 4,379 workers, an increase of 11 establishments and 2,677 workers or 157 per cent. increase in workers employed. This was a much greater rate of increase than in Indianapolis or any Indiana city of the same class of Hammond. The actual and percentage increase in the number of workers in manufacturing establishments in Hammond and other cities is indicated in Table 8 and Chart 3.

TABLE 8

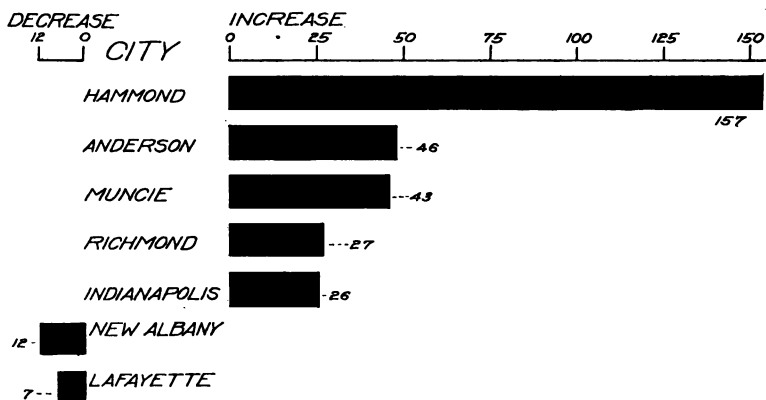
Actual and Percentage of Increase of Workers in Manufacturing Plants in Hammond and Other Indiana Cities, 1904-1909

CITIES	Workers Employed in Manufacturing Plants		Increase in Workers 1904-1909	
	1909	1904	Number	Per cent.
Hammond.....	4,379	1,702	2,677	157
Anderson.....	5,109	3,491	1,618	46
Muncie.....	4,444	3,106	1,338	43
Richmond.....	4,433	3,483	950	27
Indianapolis.....	37,929	31,431	6,495	26
New Albany.....	2,135	2,444	-309*	-12*
Lafayette.....	1,983	2,097	-114*	-7*

*Decrease.

CHART 3

Percentage Increase of Workers in Manufacturing Establishments
in Hammond and Other Cities



That the industries of Hammond employ a larger percentage of the total population than many other cities in Indiana is indicated in Table 9 and Chart 4.

TABLE 9

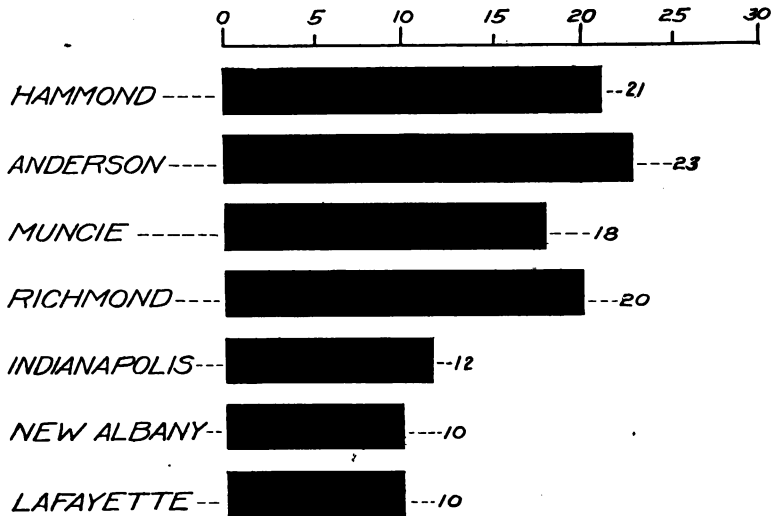
Percentage of Total Inhabitants Employed in Manufacturing Establishments in Hammond and Other Cities. Derived from Number in Industries in 1909, and Population in 1910

CITY	Per cent. in Industry	CITY	Per cent. in Industry
Hammond.....	21.0	Indianapolis.....	12.0
Anderson.....	23.0	New Albany.....	10.0
Muncie.....	18.0	Lafayette.....	10.0
Richmond.....	20.0		

In 1909, the capital invested in Hammond manufacturing establishments amounted to \$16,270,855.00, the value of the manufactured products for that year amounting to \$15,580,250. The capital invested at the present time is far greater than indicated for 1909 and the number of employes has probably increased at least 40 per cent. Reports of the State Bureau of Inspection for the year ending September 30, 1913, indicate 5,764 employes in the Hammond establishments, and it is probable that this report did not include all establishments.

CHART 4

Percentage of Population Employed in Manufacturing Establishments in
Hammond and Other Cities



The local importance of the Hammond industries is further demonstrated by reports showing the occupations of the parents of 13 and 14 years old boys and girls attending the Hammond schools. Comparative reports from other cities showing the occupations of the fathers of the 13 and 14 year old children indicate that in Hammond, 61 per cent. were engaged in manufacturing establishments as compared with 58 per cent. in South Bend (1); 46 per cent. in Evansville (1); 45 per cent. in Richmond, Virginia (2); 38 per cent. in Springfield, Illinois (3); and 25 per cent. in New Orleans (4).

Method of Obtaining Data. The facts concerning the industries of Hammond: products, number of wage earners employed, materials used, trades and occupations involved, etc., were obtained by personal visits to factories, except in the case of small

(1) From "Some Conditions Affecting Problems of Industrial Education in 78 American School Systems" Russell Sage Foundation, New York City. (2) Preliminary Report of the Richmond Survey, National Society for the Promotion of Industrial Education, New York City. (3) Report of the Springfield School Survey, Russell Sage Foundation, New York City. (4) Part 1 of the Vocational Survey of New Orleans, Board of Education, New Orleans, La.

job printing shops, tailor shops and small lumber and planing mills, where data were obtained by means of a conversation over the telephone. In many cases one day, and in some cases two days, were spent in the factories studying manufacturing processes, and determining the knowledge and skills required of workers.

At the time the factories were visited, the month of January, 1915, a season of widespread industrial depression prevailed, and the majority of the plants had on their payrolls but a small percentage of the usual force, and some of the establishments had shut down temporarily.

The Products of Hammond Industries. The manufacturing industries of Hammond are widely diversified in character, including the making and repairing of freight cars and steel passenger cars for railroad and street car use; manufacturing railroad supplies, such as torpedo signals, safety devices, coil and elliptic springs, bolsters, brake beams, side bearings, bolts and rivets; surgical, dental and hospital equipments, instruments and supplies, such as operating tables and instruments; dental chairs and complete equipments including hospital furniture, cabinets and medicines, and drugs, as well as many miscellaneous supplies; manufacturing office and household furniture, such as desks, chairs, cabinets, mattresses, bed springs; manufacturing lumber and milling products including house trimmings, window frames, doors, etc.; asphaltum products as applied to roofing; distillery products; manufacturing pianos; glue; fertilizers; food for stock; cotton belting and hose; concrete roofing tiles; food products and beverages, such as various preserved foods, gelatin and bottling soda water and other soft drinks; manufacturing clothing products including men's shirts, suits, nurses' and surgeons' aprons, etc.; a large variety of printing and publishing products; and miscellaneous wood and metal products including patterns and models, agricultural implements, iron chains, boilers, tanks, and window weights.

Size of Hammond Manufacturing Establishments. A classification of the manufacturing establishments of Hammond according to the nature of the finished product and approximate number of wage earners employed is contained in Table 10. The number of employees indicated does not necessarily represent the number upon the payroll for January, 1915, but rather the number employed under normal conditions.

TABLE 10
Size and Product of Manufacturing Establishments of Hammond*

Character of Product	Number of Establishments Employing Wage Earners							
	Under 10	10 to 25	25 to 50	50 to 100	100 to 300	300 to 500	500 to 1000	2000 to 3000
Passenger, Freight and Steel Cars.....	..	..	..	..	..	..	..	1
Car Parts: Springs, Bolsters, etc.....	..	..	..	..	..	..	1	..
Repairing Freight Cars.....	..	..	..	1	..	..	..	..
Repairing Freight Cars and Manufacturing Bolts and Rivets.....	..	..	..	..	1	..	..	..
R. R. Torpedo Signals	..	..	..	1	..	..	..	..
R. R. Safety Devices	..	1	..	..	..	..	..	..
Potato Planting Machinery and Tilling and Harvesting Machinery.....	..	1	..	1	..	..	..	..
Iron Chains.....	..	..	1	..	..	..	..	..
Machine and Forge Products, Brass and Iron.....	..	1	1	..	..	..	..	..
Boilers.....	..	..	1	..	..	..	..	..
Patterns and Models	1	..	..	..	..	..	..	..
Surgical, Dental, Hospital Supplies, Instruments and Furniture.....	..	..	..	..	..	1	..	..
Concrete Tiles.....	..	..	..	1	..	..	..	..
Mattresses and Bedding.....	..	..	..	2	..	..	..	..
Glue, Gelatin and Fertilizers.....	..	..	..	..	1	1	..	..
Fertilizers.....	..	..	1	..	..	..	..	..
Printing and Publishing.....	9	..	..	..	..	..	1	..
Distillery Products..	..	..	..	1	..	..	..	..
Preserved Food Products.....	..	..	..	..	..	1	..	..
Invalid Chairs.....	..	1	..	..	..	..	..	..
Men's Shirts.....	..	..	..	1	..	..	..	..
Men's Suits.....	10	..	..	..	..	..	..	..
Pianos.....	..	..	..	..	1	..	..	..
Cotton Belting and Hose.....	..	1	..	..	..	..	..	..
Asphalt Roofing.....	1	..	..	..	..	..	..	..
Planing and Lumber Mills.....	5	..	..	..	..	..	..	..
Automobile Repairing	8	..	..	..	..	..	..	..
Cornices, Heating Systems, etc.....	8	..	..	..	..	..	..	..
Total.....	42	5	4	8	3	3	2	1

*Two of the establishments herein recorded are in West Hammond, Ill., but really form a part of the Hammond community of interests.

PART 2. INDUSTRIAL PURSUITS OF HAMMOND

Trades Represented in Manufacturing Establishments. In the various manufacturing establishments of Hammond a great variety of trades and occupations are represented. No attempt has been made to closely segregate these trades, as close systematic tabulation, while statistically desirable, is of little significance and worth to those who wish to interpret the data for purposes of education and school procedure. The number of various artisans indicated in the subsequent sections are only approximately correct, and, in the main, represent only those employed in establishments during the month of January. For purposes of education, however, these figures are entirely satisfactory.

Analysis of Trades. No attempt was made to analyze in detail the pursuits and trades enumerated in the following sections. In every case, however, careful observations were made to determine the respects in which work and skills required were similar and dissimilar to the same trades and pursuits in other cities. The observer had continually in mind the occupational descriptions and analyses now available in printed form, in order to see to what degree these descriptions could be applied to the Hammond situation.

In the main, the trades for which specific vocational training is recommended in Part 3, Chapter IV, involve the same skills as found in most manufacturing cities. It will be noted that the metal trades relate particularly to the manufacturing of steel cars and car parts and surgical instruments and supplies.

§ 1. Metal Trades and Pursuits

Those engaged in pursuits involving work in metals are here listed. The exact nature of the work, the products in the construction of which metal workers are required and a brief description of the skills required are appended in the sections following the lists of occupations.*

* In describing the processes involved in the various trades in this and other sections of the report, the "Hours and Wages Series," the U. S. Bureau of Labor Statistics and the findings recorded in the Charts of Bulletin No. 162, the Richmond Survey, have been occasionally quoted.

Fitters, reamers and helpers.....	222	Males
Car finishers and trimmers.....	178	"
Machinists, general.....	163	"
Machinists' helpers.....	18	"
Riveters, buckers and helpers.....	141	"
Tinners, tinsmiths.....	70	"
Heaters.....	43	"
Punchmen and helpers.....	35	"
Pressmen and helpers..	34	"
Instrument makers.....	33	"
Instrument makers' helpers.....	3	"
Blacksmiths.....	33	"
Blacksmiths' helpers.....	3	"
Coil spring makers.....	31	"
Bolster makers.....	25	"
Shearmen.....	25	"
Shearmen's helpers.....	3	"
Polishers and buffers.....	25	"
Sheet metal workers (bench hands).....	22	"
Elliptic spring makers.....	19	"
Welders.....	18	"
Iron moulders.....	16	"
Automobile machinists.....	14	"
Automobile machinists' helpers.....	10	"
Platers and picklers.....	15	"
Chain makers.....	15	"
Chain makers' helpers.....	2	"
Rivet and bolt headers.....	10	"
Toolmakers.....	10	"
Brass moulders.....	8	"
Railroad truck builders.....	8	"
Brass foundry hands.....	8	"
Screw machine operators.....	7	"
Brass finishers.....	7	"
Chain link cutters and collars.....	6	"
Bolt threaders.....	5	"
Machine assemblers.....	5	"
Boiler makers.....	3	"
Bulldozer operators.....	3	"
Bulldozer operator helper.....	1	"
Core makers.....	2	"
Emery grinders.....	1	"
Pipe cutters.....	1	"
Cupola man.....	1	"
Total.....	1,302	"

Fitters and Reamers; Passenger and Freight Car Construction. Fitters and Reamers place steel plates and bars in position for riveters, who fasten them permanently in place. This is rated as semiskilled work. A general knowledge of car construction, ability to receive orders and read blueprints and physical strength are the primal qualifications for success in this work.

Finishers and Trimmers; Passenger Car Construction. Such workers cut and fit wood and steel parts used throughout the inside finishing of steel cars: the doors, partitions, panels, etc. This is a highly skilled work.

Machinists. About 23 of the machinists in Hammond manufacturing establishments were employed for purposes of machine installation and for its repair, upkeep and adjustment. Among plants so employing machinists were those engaged in printing, in manufacturing chains, glue, belting and in food preserving and distilling. However, the greater number of machinists were engaged in metal working, involved in production in these lines: car making and repairing; manufacturing electric motors; general machine products; dies; tools; wheel boring; axle turning; etc. Such work requires men with a wide knowledge of all aspects of their trade. The description of machinists' work in Richmond applies also to the work of Hammond machinists: "Finishing castings and forgings to size, and erecting and repairing machinery. Bench or vise work, machine work, and floor work are involved in these processes, which include chipping, drilling, tapping, reaming, turning, facing, boring, planing, cutting gears and scraping bearings. The all-around machinist is skilled in the use of hand tools and in the operation of lathes, drillpresses, reamers, planers, shapers, vertical and horizontal boring mills, gear-cutting and other special machines."* A number of young men are employed along special lines in the making of parts for electric motors, other machines and devices. Such work involves the continued use of the drill press, punch press and automatic or semiautomatic machines. These young men need much supplemental training and experience before they can become machinists.

Riveters and Buckers; Car and Car Parts and Boiler Construction. Riveters fasten together permanently metal plates, beams, and sills by means of red hot rivets, with hand or pneumatic hammers. Buckers hold the rivets in place by means of a heavy bucking iron or plate, while the riveters shape the rivet head.

Tinners and Tinsmiths; Car Construction. This work involves the use of tin, brass and sheet metal as applied to car roofs, lamp ventilators, metal water coolers, wash basins, drains and

* Chart on Metal Trades, Richmond Survey. Ibid.

sheet metal parts in refrigerator cars. *Surgical and Hospital Supplies.* Tinsmiths are also employed in the manufacturing of metal receptacles for dental chairs, hospital equipment, etc. The work involves the shaping, soldering and brazing of tin, copper, and brass, according to samples, patterns and drawings and requires a high grade of skill. *Cornices and Heating and Roofing.* As related to cornice making, roofing and heating plant installation, work of tanners and sheet metal workers involves a rougher grade of work but requires a high degree of skill.

Heaters. Heaters usually are young boys with working permits, who are employed in the manufacturing of scarf link chains, in placing and removing these links in the gas furnaces; and in the manufacturing of bolts, in heating iron bolt bars previous to heading. In car construction, this work involves heating rivets, iron plates, etc. Heater boys working on scarf link chains may become chain makers; in the manufacture of bolts, young boys starting as nutters may become heaters, then threaders and then headers.

Punchmen. This work involves punching holes by means of a power punch in iron plates and bars used in car, bolster and brake beam construction. It is rated as semiskilled.

Instrument Makers. The work of instrument making involves forging, fitting, filing, riveting, tempering and sharpening high grade surgical and dental instruments. Each instrument maker follows an instrument through all the various processes. A high degree of skill is required, and workers are recruited from among key fitters and locksmiths of wide experience usually having been trained abroad.

Blacksmiths. Work of blacksmiths involves shaping iron and steel to size. In Hammond, in addition to those engaged in repair work in small shops, blacksmiths are employed in plants manufacturing chains, surgical instruments, mattresses and car and car parts.

Coil Spring Makers. Men of several different trades are employed in the production of coil springs for railroad cars, viz.: Bradley hammer operators, spring coilers, rollers, pressmen and spring testers, and all are rated as skilled workmen.

Bolster Makers. Bolster making embraces the trades of tension plate and channel benders, hammermen, punchmen, together with other work rated as unskilled day labor.

Shearmen. These are employed in the operation of shearing machines in cutting plates and sheets of iron for car and elliptic springs construction. Their helpers receive the cut plates or bars and may become shearmen.

Polishers and Buffers. This work is included in the process of making surgical and dental instruments and in the manufacture of brass foundry and machine products. It requires the skillful use of all sorts of grinding, polishing and buffing wheels.

Sheet Metal Workers. These men are employed in the manufacturing of cornices and the installation of heating and ventilating systems, but as here listed are engaged primarily in work known as bench sheet metal work, incident to the production of metal hospital cabinets, operating tables and hospital furniture. This includes a wide variety of processes, such as shaping, filing, fitting pieces of metal, riveting, welding and soldering, as well as fitting hinges, catches and locks, and requires a wide experience and great skill.

Elliptic Spring Makers. In the manufacture of this product a number of trades are involved, such as trimmers, banders, rollers and elliptic spring makers, the last two mentioned being highly skilled.

Welders. This work includes fastening together metal plates by the electric spot process, or hand welding, by use of the acetylene flame. It is one of the processes involved in the manufacture of cabinets and hospital supplies and also interior car construction, and is rapidly doing away with riveting for these purposes.

Iron and Brass Moulders. Taking into consideration the importance of the metal industries in Hammond, there is relatively very little metal moulding. It is customary for many establishments to have the necessary castings made in Chicago, or in branch establishments located elsewhere. The iron moulding done in Hammond consists of making parts for potato machinery and miscellaneous foundry products. The brass moulding is for a diversified line of brass goods.

Automobile Machinists. Automobile machinists and repairmen are employed in five Hammond garages. Their work con-

sists of making repairs, adjustments, replacing parts, etc., and may require the use of the lathe, drill press and other machines.

Platers and Picklers. Electroplating is one of the processes in the production of surgical and dental instruments and brass products. The work involves the preparation of the liquid, cleaning and immersing the part to be plated, making electrical connections, etc. A general knowledge of electricity is essential.

Chain Makers. The work of chain making embraces chain coiling, link cutting, scarf link chain making and hand link chain making, as well as the work of the heaters and their helpers. The makers of scarf link and hand chains are highly skilled, as they must possess a knowledge of the proper heat necessary to good welding by means of hand or semiautomatic hammers, and skill in actual welding. No electric chain welding is done in Hammond. Scarf link heater boys may become scarf link makers, and the same holds true of the helpers employed by the hand link makers who may become hand link chain makers.

Rivet and Bolt Headers. The heading of rivets and bolts is done by placing the heated iron bar in the jaws of a machine and applying the power which operates the automatic heater.

Tool Makers. These men are highly skilled and are employed in three of the large Hammond establishments to make special tools and to keep tools in repair.

Truck Builders. The building of trucks for passenger and freight cars consists of assembling the various parts of trucks, such as journal boxes, bearing metals, bolsters, sills, arch bars, brake beams and wheel axles. Repairing of trucks is also included in their work.

Screw Machine Operators. Screw machine operating is required in the manufacturing of certain surgical instruments and hospital apparatus, and includes the operating of automatic or semiautomatic screw machines. This work involves mounting tubes or metal stock and the appropriate die or tool, and controlling the machine by hand lever. Such work is rated as skilled.

Bolt Threaders. These are usually young men promoted from nutters, their work being to mount bolts in the jaws of the automatic threading machine, and with hand lever apply revolving cutting die to the bolt shaft.

Machine Assemblers. In this connection, the term assemblers refers to semiskilled men who are engaged in the assembling of parts for potato planting and agricultural machinery.

Boiler Makers. The work of the Richmond boiler maker, as described in the Richmond Survey, is similar to the work of the Hammond boiler makers: "Plates are laid off to size and shape; rivet holes located and punched; punched plates sheared to size and shape and run through rolls which give a circular form. Where butt joints are made, plates are chipped and planed to fit, butt straps placed over joints, bolted in position and holes in plates and strap reamed to match. Rivets, heated red hot, are inserted from the inside, held in position by bucking irons and headed up by hand and power hammers."*

§ 2. Woodworking Trades and Pursuits

Woodworking trades and pursuits as carried on in the manufacturing plants of Hammond include the following:

Car builders.....	241	Males
Wood machine hands.....	80	"
Cabinet makers.....	52	"
Carpenters	44	"
Pattern and template makers.....	17	"
Coopers	15	"
Boxmakers	12	"
Veneerers	5	"
Total	466	"

Car Builders. In Hammond, car builders are engaged in the construction of new freight cars and the repairing of old ones. A difference should be noted between a car builder in the construction plant and a car builder and carpenter in a repair shop; the former is an assembler of parts, while the latter is a carpenter, within the general definition of the term, doing both construction work and high grade repair work. In the Hammond plants, car builders are listed as stringers and floor layers, roofers, doormen, trimmers, reamers and framers and siders, and car repairers as roofers, bodymen and doormen. A well-trained carpenter may soon become adapted to building and repairing wooden freight cars.

* Ibid.

Machine Wood Workers. Car Shop. In manufacturing and repairing of wooden freight cars, machine woodworking involves "Getting out material used in repairing, etc., by operating such machines as the following: circular saws for cutting off, ripping and sawing angles; band saws for cutting angles or irregular shapes; scroll saws for sawing curves and scrolls; planers for cutting to required thicknesses; joiners for straightening, smoothing and beveling edges; mortising machines . . . ; tenon machine . . . ; moulding machines . . . ; shapers . . . ; sand papering machines, lathes, boring machines . . . , etc."* Wood machine workers are employed in piano factories where the same machines are operated, but a much higher degree of skill required. The workers shift from one machine to another as their work requires. They are also employed in the manufacturing of furniture and invalid chairs, where work consists of getting out parts from rough stock.

Cabinet Makers; Passenger Car Construction. In passenger car construction, cabinet makers do all the high class work necessary in finishing the interior of the car, which requires great skill and accuracy on the part of the worker. They do the paneling, moulding, and door fitting, and, on steel cars, cut and fit and apply steel and brass moulding. *Furniture Making.* In this line cabinet making involves shaping, assembling, fitting and fastening wood parts in the construction of desks, cabinets and chairs, using bench hand tools. The Hammond cabinet maker must possess a high degree of skill. *Piano Making.* In this industry cabinet making embraces all phases of making and assembling the case and sounding board. Such work requires a general knowledge of the principles of cabinet making, with particular reference to piano construction. Carving is at times also involved.

Carpenters. In the Hammond manufacturing plants, carpenters are engaged in repairing and upkeep work, and while such men are classed as carpenters they are not employed in building construction, in the ordinary sense.

Pattern Makers. Considering the place of importance held by the metal trades in Hammond, there are relatively few pattern makers employed, as most of the work of this character is done elsewhere. There are some pattern makers, however, working in a general machine and model plant and in a steel car establishment. The work of the wood pattern maker is described in the Richmond Survey.

* Ibid.

Coopers. Coopers are employed in repairing barrels and casks for the distillery and certain food-preserving establishments. This is skilled work. In Hammond this work is largely done by foreigners.

Box Makers. Box makers are employed in making packing boxes for printing and food-preserving plants. The work consists of operating power cut-off and circular saw, automatic nailing machine and hand stenciling. The skill necessary can be acquired in a short period of time.

Veneerers. The work of veneerers in furniture and piano factories consists of cutting, matching and joining and gluing the veneer to the stock; then placing the veneered stock in a press which forces the veneer tightly against the solid wood, after which the veneered wood is removed to a retainer where it is left until thoroughly dried.

§ 3. Printing, Publishing and Bookbinding Trades

Trades coming under the head of printing, publishing and bookbinding, as carried on in Hammond, are as follows:

Printers (small job shops).....	16	Males	
Pressmen.....	30	"	
Press feeders.....	50	"	14 Females
Foundrymen and helpers.....	19	"	
Compositors.....	36	"	
Proofreaders.....			8 "
Copy holders.....			5 "
Linotype operators.....	15	"	
Apprentices (Composing Dept.).....	8	"	
Soft Binding—			
Skilled operators.....	17	"	50 "
Semiskilled operators.....	19	"	170 "
Foreladies.....			4 "
Hard Binding—			
Skilled operators.....	55	"	6 "
Semiskilled helpers, etc.....	30	"	
Foremen.....	1	"	
Total.....	296	"	257 "

Printers. In small job shops the work of a printer includes hand composing, press operating, etc., incident to printing booklets, circulars, letter heads and other small jobs.

Pressmen. Platen and cylinder pressmen must understand the adjusting of forms and plates to the press, how to regulate register and ink, and must supervise the work of the press feeders.

Press Feeders. With the use of the platen press this work

consists of feeding the sheets upon which the impression is to be made and removing the printed sheet. With cylinder presses, the feeder places a large sheet of paper against the fingers of the machine and the printed sheet is automatically delivered.

Foundrymen. Within the printing foundry various trades are included in electrotyping; such as the moulder, who prepares the wax plates and makes the type impressions in wax by means of the moulding press; the wax builder-up, who builds up hollow spaces; the battery man, who attends to the actual electrotyping; the caster, who backs up the thin copper film with soft molten metal; the finisher, who routs, patches and inserts; the metal saw operator, who cuts and trims backed up forms; and the wood blocker, who fastens wood blocks to the backs of cuts in order to make them type high. All these workers are highly skilled.

Hand Compositors. The work of a compositor includes setting type by hand for titles, tables, etc., and justifying and locking such matter in the chase. This work requires discrimination as to design and makeup, space arrangement, knowledge of appropriate types, etc., knowledge of English, punctuation, etc., also distribution of type, taking proofs, paging, etc.*

Proof Reading. Proofreading is done by men and women, and consists of comparing the printed with the original copy, noting departures from the text and indicating corrections. Proof readers also mark sections which they think should be brought to the author's attention for rephrasing. Knowledge of symbols, of form make up, types and English are required.*

Copy Holders. Young women are employed as copy holders and their work is to read the original copy to the proof reader. Copy holders may become proof readers.

Linotype Operators. By means of the linotype machine, a line of type is composed, justified and cast in one piece. Operators must be able to operate machine with accuracy and speed, and make minor machine repairs, though linotype machinists are employed to make difficult adjustments. The linotype operators must also possess a knowledge of English, type designations and makeup.*

* See Chart Printing and Publishing Richmond Survey. Ibid.

Soft Bookbinding Employees. In the "soft bookbinding" large printed sheets are folded and pages and sections of printed matter gathered together and sewed or wire stitched. In the case of pamphlets, paper or cloth covers are attached. Cases are made and attached in the hard bindery. Occupations requiring skilled men in the soft bindery are: the operation of automatic folding machines; trimming sections and books with power overcutters; operating round cornering machine and operating smashing machine, by use of which books are reduced to the proper thickness. Skilled women are employed as inspectors; as operators of automatic tippers; collators; sewing machine operators; hand folders and point folding machine operators. Semiskilled occupations requiring women and girls, are cutters off from sewing machines; hand folders; wire stitcher operators; joggers for stitchers (the straightening of sections and placing in piles ready for stitching); hand tippers, involving the placing of inserts and single cuts in place; gatherers (those who gather up books and pamphlet sections in the proper order); and hand coverers, who paste cloth or paper covers on booklets. Semi and unskilled occupations, requiring young men, are folding-machine helpers, trimmer helpers, automatic covering-machine tenders, round-cornering-machine helpers, punch press operators and wrapper boys.

Hard Bindery Employees. In the "hard bindery" the sewed sections constituting the book or publications are rounded, glued, forwarded, and the case is made and attached to the book. Most of the operations and trades within the hard bindery require skilled men. Some of the skilled occupations and trades are the following: back rounding, involving the use of the backing machine to round the back and make the front concave; back gluing, the attaching of a piece of coarse fabric to the back of the book; forwarding and casting, that is, pasting the outside of the first and last leaves of the book to the cover and placing them between the boards of the case and applying pressure; hand case making, involving attaching the cover boards to the covering fabric or leather with adhesives. Marbelling is highly skilled and involves mixing and preparing marbelling pigment in trough and dipping papers upon this fluid. Gilding, when related to gilding edges of books, involves mounting the books in the vise, applying sizing liquid, laying gold leaf and rubbing and burnishing, and is skilled work. Gold laying is done either by skilled men or women,

and involves laying the gold leaf over those parts of the case upon which letter or decorative impressions are to be stamped. This work includes applying sizing, laying gold leaf and rubbing away waste gold after hot stamping, and is skilled. Press stamping involves mounting the metal die in the stamping press, regulating heat and head pressure and inserting case between die and press and operating the press. Indexing involves pasting indexing letters in the proper places on edges of books, places being indicated by grooves cut in sheets. This work is done by skilled females.

Young men helpers are employed in back rounding, gluing, machine case making and press stamping. Such helpers may become skilled bookbinders.

§ 4. Pursuits Involved in Food Preserving and Distilling

A considerable number of those employed in food-preserving plants and distilleries are rated as common laborers, and, therefore, not included in this section, but under "Work of Laborers."

Packers and labelers.....	200	Females	
Glue spreaders.....	200	"	
Cooks		12	Males
Soda water bottlers.....		3	"
Millers		2	"
Yeast makers.....		2	"
Spirit runners.....		2	"
Total	400	21	"

Packers and Labellers; Food Preserving. In the food-preserving establishments women, including some girls working on permits, are employed in packing bottled goods, such as olives and pickles. Such work is rated as skilled in the sense that it requires a certain "knack" to arrange the products in the proper position. Labelling consists of pasting printed labels to bottles, cans and boxes.

Glue Spreaders. Liquid glue is drawn from the vats into metal receptacles, where it remains until it becomes of a gelatin-like consistency, when the cakes are cut into slices. Spreading these slices upon frames covered with wire netting is called glue spreading. This is done by young women, and is classed as semi-skilled work. It is undesirable employment on account of the wet condition of the floors upon which women must stand. The frames upon which slices of glue are thus spread are placed in evaporators and the glue when dry must be removed from the

frames. This work is called stripping and is also done by women, and is unskilled work.

Cooks. When related to food preserving, this work is highly skilled, as it involves the use of steam copper kettles, control of heat, knowledge of time required for proper cooking, etc. Experienced English cooks are oftentimes employed in Hammond. Cooking as related to the manufacturing of glue and gelatin, involves regulating the steam supply to huge wooden vats of stock, and is usually performed by laborers who become proficient with experience.

Millers, Yeast Makers, Spirit Runners. These occupations are involved in the work of distilling and are of the usual order.

§ 5. Trades Involved in Piano Making.*

The making and finishing of piano cases, sounding boards and other wood parts requires wood workers, and their work is described under the woodworking trades. Other lines are:

Action regulators.....	12	Males
Wire stringers.....	5	"
Tuners.....	5	"
Player installers.....	5	"
Assemblers.....	5	"
Total.....	32	"

Action Regulators. This work consists of key fitting, rough and fine key regulating and requires great skill and several years' experience to develop proficiency.

Wire Stringers. Wire stringers wrap and attach piano wire around the poles upon the sounding board; they also adjust the wire to a given tension by turning the poles. A skilled mechanic may become proficient at this work.

Tuners. This work consists of adjusting wires to the proper tension for the required pitch, and may be classified as rough and finished tuning, in either case being rated as highly skilled.

Player Installers. The installation of player attachments involves mounting, adjusting and regulating piano players previously constructed.

* Other than those listed under wood and metal working.

Assemblers. The work of assembling, to which reference is here made, pertains to mounting various parts of the piano action in place and doing the work of preliminary adjusting. This includes mounting hammers, keys, etc., to the appropriate frames and plates. Young men are usually employed for this work, and upon becoming proficient may be promoted to the action regulating department.

§ 6. Miscellaneous Electrical Pursuits

Pursuits involving various phases of electrical work within Hammond manufacturing plants include the following:

General electricians.....	53	Males
Electricians' helpers.....	1	"
Crane operators.....	22	"
Armature winders and motor assemblers...	13	"
Crane repairers.....	7	"
Assemblers of electrical devices.....	6	"
Total	102	"

Electricians. General electricians for repair, installation and upkeep purposes are employed in nine Hammond manufacturing establishments. Such work requires a broader knowledge and experience than that required in any one specialized field, such as motor winding or interior light installation. Such general work may involve repairing electric motors, installing lighting fixtures and wire, and fire alarm bell signal and safety systems. As related to the manufacturing of passenger cars, electricians are employed in light, motor and controlling device installation.

Electric Crane Operators. In the production of steel cars, overhead electric cranes are employed in lifting parts from place to place, and operators must be skilled in handling controlling devices and in interpreting and obeying signals.

Crane Repairers. Crane repairers must make motor adjustments and repair and install wires and connections, which requires the skill of a general electrician, as well as that of a machinist.

Armature Winders and Motor Assemblers. Young men are employed in turning motor parts to size, winding armatures, and making and assembling parts of motors designed for small utility and dental equipment purposes. Such work, though highly specialized and requiring considerable skill, does not afford a

broad enough experience for young men so engaged to become either proficient electricians or machinists, without supplemental opportunities for training and experience.

Assemblers of Electric Devices. Young men are employed as assemblers of parts of various electric devices: pumps, vibrators, rheostats for surgical and hospital use. While this work is highly educative it does not afford a broad enough experience for developing all around workers, unless supplemented by a wider range of experiences and a study of electrical theory.

§ 7. Steam, Pipe and Air Brake Fitters

Steam fitters.....	20	Males
Pipe and air brake fitters.....	36	"
Pipe fitters and helpers.....	8	"
Total	64	"

Steam Fitters. Steam fitters are employed in nine of the Hammond manufacturing plants, and their work consists of keeping lines of pipe in repair, and making connections to pumps, cooking vats and vessels, refrigerator and evaporator plants, etc. General steam fitters of considerable experience are required.

Pipe and Air Brake Fitters. In connection with car construction, pipe fitters cut, thread, bend and put together metal pipes and tubing and fit together the necessary parts for the transmission of air, gas, steam and water throughout the car.

§ 8. Millwrights and Repairmen

Millwrights	50	Males
Repairmen	1	"
Total	51	"

Millwrights. These men are employed in four Hammond establishments, their work being the lining up of shafts, placing machines, adjusting and repairing belts, etc.

§ 9. Engineers, Firemen, Tenders, Etc.

Stationary engineers.....	20	Males
Engineers' helpers.....	2	"
Firemen	33	"
Oilers	3	"
Water tenders.....	2	"
Total	60	"

The work of stationary engineers, firemen, oilers and water tenders employed in Hammond establishments is of the usual order.

§ 10. Occupations in the Clothing Industries

Sewing machine operators.....	125	Females	
Tailors			14 Males
Tailors' helpers.....			6 "
Cutters	5	"	
Total	130	"	20 "

Sewing Machine Operators. Female sewing-machine operators are employed in the making of men's shirts, surgeons' and nurses' aprons, and spring and mattress covers. In apron making, operations are largely limited to hemming, while in shirt making operations include hemming, sleeve making, sleeve setting, collar making, collar setting, button-hole making and button sewing. In making mattress covers the work is limited to hemming.

Tailors. Owners and employees of small custom tailor shops make men's suits, and none of the establishments employs, as a rule, over four men. Such work includes pattern and cloth cutting, basting, fitting and trimming, hand and machine sewing, pressing and finishing.

§ 11. Draughtsmen

Draughtsmen	13	Males
Blue Printers.....	2	"
Total	15	"

The tendency in Hammond is to have plans drawn in Chicago and in branch or main shops of Hammond plants, located elsewhere. Draughtsmen, however, are employed in designing details for roof construction, involving the use of cement tiles; in designing car parts, i. e., bolsters, brake beams, springs, etc.; and in house, store and shop interiors showing plans for light and heat installation.

§ 12. Chemists

Chemists	7	Males
Beecker boys, etc.....	3	"
Total	10	"

Trained chemists are employed in deriving formulas for medicinal productions, in testing chemicals so involved, in testing chemicals used in making torpedo signals and in testing and rating various grades of glues and gelatins.

§ 18. Painters, Stainers, Enamellers and Finishers

Passenger car painters.....	108	Males
Wood finishers.....	41	"
Freight car painters.....	14	"
Painters and white enamellers.....	8	"
Stencillers	2	"
Sign painters.....	1	"
Paint mixer.....	1	"
Stencil cutter.....	1	"
Total	176	"

Passenger Car Painters. The work of passenger car painters includes applying paint to the interior and exterior of cars, rubbing down, graining, varnishing, striping and lettering, all of which is highly skilled.*

Wood Finishers. Related to furniture and cabinet construction, this work includes staining and filling, which is done by semiskilled men; sanding, done by boys or semiskilled men; and shellacing and varnishing, which is done by skilled men. Polishers and rubbers are also skilled, and in some establishments rubbing on flat surfaces is accomplished by the use of the rubbing machine. In piano finishing a very high type of work is involved, requiring careful staining, varnishing and rubbing.

Freight Car Painters. Freight car painters are rated as semi or unskilled workers, their work being to apply the paint with large brushes to the exterior parts of the car.

Painters and White Enamellers. In the manufacturing of wood furniture and cabinets, paint and white enamel may be applied with either the sprayer or hand brush, such work being highly skilled. In white finishing of metal chairs, tables or cabinets, priming coats are applied and rubbed down by semiskilled men, the final coat being applied by either sprayer or hand brush by skilled men. The enameled article is then placed in the baking oven.

*See Chart Metal Trades Richmond Survey. Ibid.

§ 14. Miscellaneous Pursuits

Concrete tile moulders.....	52	Males		
Bed spring collers and semiskilled operators in manufacturing springs and mat- tresses	50	"	10	Females
Cardboard tube makers and instrument box finishers	3	"	17	"
Book inspectors.....	3	"	15	"
Pill counters, weighers, etc.....			6	"
Upholsterers	4	"		
Wire cutters.....	4	"		
Surgical, brace makers.....	4	"		
Belt folders and finishers.....	2	"		
Total	122	"	48	"

Concrete Tile Moulders. Concrete tile moulders are skilled men who place mixed concrete and reinforcing wires in metal moulds, tamp the mixture and smooth and color the roofing tile. Later, workers must remove tiles from the moulds and set them aside to temper and season. Workers must possess physical strength and endurance, must have knowledge concerning the proper consistency of concrete mixture, methods of tamping and inserting reinforcements, finishing, coloring and removing tile from mould.

Bed Spring Coilers and Semiskilled Operators. Bed spring coilers operate the circular and running spring coiling machines, both of which are largely automatic; other semiskilled work is mounting springs, stretching woven mattresses between metal frames, binding edges of woven springs, etc. Boys on working permits may be employed in certain phases of this work.

Cardboard Tube Makers and Instrument Box Finishers. Women are employed in making cardboard tubes and applying labels for signal torpedos. Instrument box and packing box finishing involves pasting wrapping material to the exterior of wooden, or cardboard boxes.

Book Inspectors. Book inspectors examine books and pamphlets to discover imperfections in paper, binding or printing. Such work requires discrimination and is developed by experience.

Pill Counters and Weighers. Such work is done by young women and includes hand counting and the use of scales in estimating.

Upholsterers. Upholsterers are employed in the manufacture of invalid chairs and various sorts of home, office and hospital furniture.

Wire Cutters. This involves cutting reinforcing wires and woven metal netting used in making concrete roof tiles. Wires are cut to pattern size.

Surgical Brace Makers. Surgical brace makers are highly skilled men engaged in making braces to correct bodily deformities. This work involves shaping and cutting leather, fabric and sheet metals according to drawings, measurements or models, and is highly skilled.

Belt Folders and Finishers. Belt folders stretch sewed fabric belts over pulleys and fold for shipment and dip finished belt in a prepared liquid compound. This work is semiskilled.

§ 15. Laborers

Among the laborers employed in the Hammond establishments are those engaged as indicated:

Manufacture of glue and gelatin.....	300	Males	
Manufacture of fertilizers.....	100	"	
Yardmen, etc.....	100	"	
(Probably many more than indicated)			
Manufacture of R. R. bolsters.....	31	"	
Manufacture of brake beams.....	25	"	
Metal heaters.....	18	"	
(Other than heater boys)			
Coil spring dippers.....	11	"	
Waste paper gatherers and balers.....	10	"	4 Females
Bottle washers.....	10	"	
Manufacturing elliptic springs.....	9	"	
Boiler helpers.....	6	"	
Concrete mixers.....	6	"	
Book section packers.....	6	"	
Preparing asphalt roofing.....	5	"	
Paper lifters and hustlers.....	5	"	
Total	642	"	4 "

§ 16. Trades Other Than Those Represented in Manufacturing Plants

In order to ascertain the number of workers in the various trades other than those entirely localized within manufacturing plants, a canvass of the entire city would have been necessary. Figures representing the approximate numbers within the building and other trades have been provided by the labor union officials, and while these estimates of the number of workers may

include some not residing within the corporate limits of the city of Hammond, their worth is none the less significant, as workers so included in the estimate are part of the Hammond community of interests. The number of workers is as follows:

Bricklayers	35	Males
Hod carriers.....	300	"
Carpenters	218	"
Painters	123	"
Electricians and linemen.....	85	"
Cement finishers.....	40	"
Plumbers	25	"
Plasterers	24	"
Sheet metal workers.....	20	"
Lathers	18	"
Machinists	75	"
Engineers	72	"
Firemen	52	"
Cigar makers.....	31	"
Stage workers.....	25	"
Boiler makers.....	18	"
Bakers	18	"
Moving picture machine operators.....	10	"
Total	1,189	"

CHAPTER III.

WORK OF YOUNG PEOPLE UNDER 17 YEARS OF AGE

Considering the large number of boys and girls who leave school at the age of fourteen years in order to go to work, it is essential to discover exactly the kind of work which these young people enter, in order to determine the possibilities of providing suitable continued general or vocational education adapted to their needs and employment.

There are two sources from which data concerning wage earning pursuits of those under seventeen years of age may be derived: first, from the records of the working permits issued by the school department; and second, from the boys and girls themselves or their employers. Both these sources were used, and the data obtained from each source are necessarily similar in some respects.

From the working permits, facts were obtained relative to the number issued to boys and girls during a certain period of time; the nativity of the young people; the number receiving permits who attended the Hammond public and parochial schools or about whom no school history is available; the length of time lapsed between leaving school and receiving the working permit; the age and grade upon leaving school; the school proficiency in terms of school marks and the extent of retardation; and finally, the specific employment for which the permit was issued.

From the reports made out by boys and girls actually at work and their employers, facts were obtained as to the number of boys and girls at work under seventeen years of age; the nativity of boys and girls and of their fathers and mothers; the number who attended public and parochial schools in Hammond or elsewhere; the achievement, in terms of school grade reached for each age, of those who attended public schools; the extent of retardation of public school children; the time lapsing between leaving school and going to work and between each job; the

voluntary efforts of the boys and girls to continue their education; and the number of jobs held with the time of holding each job as well as a description of the type of work of each job.

Concerning each of the topics enumerated, all the available data are recorded so that those desiring, may derive other tables or organize the facts upon a different basis, or compare aspects of this study with studies which may be made in the future in other localities.

PART 1. STUDY OF WORKING PERMITS

The facts derived from a study of the working permits issued to boys and girls are particularly significant for purposes of vocational education. With a complete record of the school history of such children, together with the records of the type of work which they first enter and subsequently follow, and the length of time and wages received in the various jobs, the type of work open to young boys and girls in the community is really ascertained, together with the educational needs of these children.

The working permits of 95 boys and 65 girls, issued between September 1913, and November 1914, were available in the Superintendent's office for study.

Facts of School Attendance. Three of the boys and three of the girls to whom permits were issued re-enrolled in the Hammond schools. The facts of school attendance of the 95 boys receiving work permits indicate that,

- 34 boys attended the Hammond public schools,
- 7 boys attended the Hammond parochial schools,
- 54 boys. Nothing is known concerning school attendance.

The facts of school attendance indicate that of the 65 girls receiving work permits,

- 23 girls attended the Hammond public schools,
- 5 girls attended the Hammond parochial schools
- 37 girls. Nothing is known concerning school attendance.

As it is essential to study the records of boys and girls separately, the detailed facts of age, school attendance and proficiency and work entered are recorded in two subsequent sections.

§ 1. School History and Work of Boys

Nationality and School History of Boys. All but 14 of the 95 boys to whom working permits were issued were native born whites and 3 have re-entered the Hammond schools. School his-

tories are available for 34 of the working permit boys, all of whom at some time have attended the Hammond public schools. Of the remaining 59 boys nothing is known concerning their school history.

Of the 34 boys whose school records are available, 27 received from their last teachers a satisfactory mark, 6 were rated as fair and but one as unsatisfactory. Of these 34 boys receiving working permits,

- 19 went to work directly upon leaving school
- 10 went to work one year after leaving school
- 3 went to work two years after leaving school
- 2 went to work three years after leaving school

Concerning school grade which the 34 Hammond public school boys completed it will be noted that,

- 2 completed the third grade
- 3 completed the fourth grade
- 6 completed the fifth grade
- 6 completed the sixth grade
- 9 completed the seventh grade
- 8 completed the eighth grade

It is thus seen that one-half of the boys whose records are available left school upon, or prior to, completing the sixth grade.

The ages of these boys upon leaving school are as follows:

- 4 were 12 years old
- 6 were 13 years old
- 18 were 14 years old
- 6 were 15 years old

The grades completed by boys of each age are indicated in Table 11.

TABLE 11
Age and Grade Completed by Boys Educated in Hammond Now Holding Working Permits

Grade Completed	Ages Upon Leaving School				
	12 Years	13 Years	14 Years	15 Years	Total
Third.....	2	..	..	..	2
Fourth.....	1	2	..	..	3
Fifth.....	1	1	4	..	6
Sixth.....	..	2	3	1	6
Seventh.....	..	..	7	2	9
Eighth.....	..	1	4	3	8
Total.....	4	6	18	6	34

Although 33 of the boys received fair or satisfactory school grades from their last teachers, 29 were over the normal age for the grade completed, and of these over age boys,

13 were 1 year behind their normal grade
 7 were 2 years behind their normal grade
 9 were 3 years behind their normal grade

Occupations of Working Permit Boys. Sixty-three of the working permit boys were employed in some phase of industrial work, 27 in stores and 4 in offices. The specific employment is summarized and enumerated as below indicated.

Employees in manufacturing establishments	63	Boys
Store employees	27	"
Office employees	4	"
Total	94	"

Employees: Manufacturing Establishments

Heater boys	18
Laborers (work not specified)	7
Stock clerks	7
General factory work (printing and publishing)	5
Scale checkers	6
Nutter boys	3
General factory work (mattress factory)	3
Book inspectors (bindery)	2
Bindery helpers	2
Brick heater	1
Armature winder	1
Air brake helper	1
Factory work (not specified)	4
Jogger (bindery)	1
Watcher, folding machine (bindery)	1
Mill room boy	1
Total	63

Store Employees

Errand boys	6
Messengers	5
Delivery boys	5
Wrappers	4
Clerks	3
Cash boys	2
Bundlers and packers	2
Total	27

Office Employees

Office boys	3
Catalogue filers.....	1
	<hr/>
Total	4

§ 2. School History and Work of Girls

Nationality and School History of Girls. All but seven of the 65 girls to whom working permits were issued were native born. Three of the 65 girls re-entered the Hammond schools. School histories are available for 23 of the girls, all of whom have at some time attended the Hammond public schools. Of the remaining 42 girls to whom permits were issued, nothing is definitely known concerning their schooling; i. e., school attended, grade completed or school proficiency. Many of these girls doubtless attended parochial schools, while others may not have attended any of the Hammond public or private schools. All but one of the 23 girls whose records are available, are native born white, and 14 received, from their last teachers, a satisfactory mark in general scholarship, 9 were rated as fair, and none as unsatisfactory.

The time between leaving school and going to work was as follows for the 23 girls,

- 13 went to work immediately upon leaving school
- 3 went to work one year after leaving school
- 4 went to work five years after leaving school
- 3 went to work six years after leaving school

Concerning the school grades completed by girls who attended the Hammond schools,

- 3 completed the second grade
- 3 completed the third grade
- 3 completed the fourth grade
- 3 completed the fifth grade
- 4 completed the sixth grade
- 4 completed the seventh grade
- 3 completed the eighth grade

It will be noted that 16 of these 23 girls left school to go to work upon, or prior to, completing the sixth grade.

The ages of the girls upon leaving school were as follows,

- 1 was 8 years old
- 1 was 9 years old
- 5 were 10 years old
- 2 were 13 years old
- 11 were 14 years old
- 3 were 15 years old

It is important to note from Table 12 the grades completed in connection with the ages upon leaving school.

TABLE 12
Ages and Grades Completed by Girls Educated in Hammond Now Holding Working Permits

Grade Completed	Ages of Girls Upon Leaving School								Total
	8 Yrs.	9 Yrs.	10 Yrs.	11 Yrs.	12 Yrs.	13 Yrs.	14 Yrs.	15 Yrs.	
Second.....	1	..	1	..	..	..	..	1	3
Third.....	..	1	2	..	..	..	..	..	3
Fourth.....	..	..	2	..	..	..	1	..	3
Fifth.....	..	..	..	..	..	..	3	..	3
Sixth.....	..	..	..	..	..	2	2	..	4
Seventh.....	..	..	..	..	..	..	3	1	4
Eighth.....	..	..	..	..	..	..	2	1	3
Totals.....	1	1	5	..	..	2	11	3	23

Although 14 of the 23 girls received a satisfactory school grade, 17 were over age and of these 17 over age girls,

8 were 1 year behind the normal grade
 4 were 2 years behind the normal grade
 3 were 3 years behind the normal grade
 1 was 4 years behind the normal grade
 1 was 7 years behind the normal grade

Work of Permit Girls. Forty-five of the working permit girls were employed in some phase of industrial work, 10 as store clerks or wrappers, 6 as office helpers, 1 as a telephone operator and 1 as a domestic. Specific work of the girls is summarized and enumerated as follows:

Employees in manufacturing establishments.....	45
Store employees.....	10
Office employees.....	6
Telephone operators.....	1
Household employee.....	1
Total	63

Employees: Manufacturing Establishments

General factory work, printing and publishing.....	13
Inserters (bindery).....	5
Inspectors (book).....	4
Sheet folders (bindery).....	4
General factory work (R. R. signal factory).....	3
General factory work (shirt factory).....	2
General factory work (mattress factory).....	2
Jogger for crusher (bindery).....	2
Copy holder.....	1
Collar turner (shirt factory).....	1
General factory work (not specified).....	3
Ironer in laundry.....	1
Sewing machine cutter off (bindery).....	1
Labeler	1
Packer	1
Collater (bindery).....	1
Total	45

Store Employees

Wrappers	3
Clerks	3
Sales girls—10 cent stores.....	2
Cash girls.....	2
Total	10

Office Employees

Order fillers.....	3
Filers	1
Office girls.....	1
Stock clerks.....	1
Total	6

Telephone Employees

Telephone operators.....	3
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Household Employees

Houseworkers	1
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PART 2. STUDY OF REPORTS MADE OUT BY WORKING BOYS AND GIRLS

Through the co-operative efforts of the Superintendent of Schools and employers, practically all boys and girls at work during the month of January, under 17 years of age, filled out the form schedule reproduced in the appendix. No facts were obtained from young people out of work and not attending school, or from those engaged in various forms of domestic service in Hammond homes, or from those living in Hammond who worked out of the City. Subsequent studies should include these aspects of the problem.

§ 1. Nativity, School History and Efforts to Continue Education.

Number Employed. * Schedules were obtained from 69 boys and 90 girls under seventeen years of age employed during January, and it is believed that this number includes practically all at work at that time. As previously stated, however, this was during a period of industrial depression, and normally perhaps one-third or one-half more young people would be employed, in which event, however, no new lines would be represented, but rather more workers in each of the various lines of employment.

Nativity. Birthplaces of boys and their fathers and mothers are indicated in Table 13, from which it will be noted, that, while relatively few of the boys and girls were born in Hammond, the great majority were born in the United States. None of the fathers or mothers were born in Hammond, and relatively few in the United States, the great majority of parents being foreign born. Thus, most young workers in Hammond between fourteen and sixteen years of age, are native born Americans of direct foreign parentage.

* After this section was prepared, eight more reports were received, but are not herein included.

TABLE 13
Birthplaces of Boys and Girls and Their Parents

BIRTHPLACE	Boys	Fathers	Mothers	Girls	Fathers	Mothers
Hammond.....	15	..	..	23	..	..
Indiana (other than Hammond)...	13	5	9	11	3	7
United States (other than Indiana)	27	12	8	47	11	11
Abroad.....	13	45	45	9	69	68
Unknown.....	1	7	7	..	7	4
Total.....	69	69	69	90	90	90

School Attendance. The facts of school attendance, indicating whether boys and girls attended public or parochial school or both, in Hammond, other parts of the United States, or abroad, are indicated in Table 14. It is significant to note that about two-thirds of the boys and one-third of the girls attended school in Hammond, and that attendance was about evenly divided between the public and parochial schools. Of those educated in other parts of the United States, twice as many attended parochial as public schools. It is thus seen that most of the boys and girls now at work are unknown to the Hammond public schools.

TABLE 14
Schools Which Boys and Girls Attended

PLACE ATTENDED SCHOOL	Public Schools No. Attended		Parochial Schools No. Attended		Both Public and Parochial Schools No. Attended	
	Boys	Girls	Boys	Girls	Boys	Girls
Hammond.....	26	19	14	20	6	5
United States (other than Ham- mond).....	6	13	12	27	1	4
Abroad.....	1	..	2	2	..	..
Unknown.....	1	..	..	..	..	..
Total.....	34	32	28	49	7	9

School Achievement of Public School Pupils. The grades completed by the boys and girls who have attended public schools are indicated in Table 15, from which it will be noted that the majority of the boys and girls lack one or two grades of having a complete eight grade elementary school education, and that all but seven boys and nine girls were retarded from one to five years.

TABLE 15

School Grade Completed and Extent of Retardation of Boys and Girls

	SCHOOL GRADE COMPLETED															
	Third		Fourth		Fifth		Sixth		Seventh		Eighth		1st H. S.		Total	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Accelerated 1 year	1	2	..	..	1	2
Normal.....	1	..	4	2	4	5	1	..	6	7
Retarded 1 year...	1	..	4	6	6	5	..	..	11	11
Retarded 2 years..	1	5	3	4	1	..	1	..	..	9	6
Retarded 3 years..	1	..	1	3	..	1	..	..	1	..	..	4	3
Retarded 4 years..	..	1	..	..	1	..	1	..	..	..	..	..	..	..	2	1
Total.....	..	1	..	1	1	2	10	3	10	9	11	14	1	..	33	30

Age Upon Leaving School. The ages upon which boys and girls left school are indicated in Table 16. The astonishing fact here revealed is that the great majority of the boys and girls attended school one or two years beyond the compulsory age limit. Coupled with facts of school achievement recorded in the previous table, it is seen that while they attended school long enough to easily complete the full elementary school, the majority failed to do so.

TABLE 16
Ages Upon Which Boys and Girls Left School

AGE PERIODS	Number Leaving of Each Age			
	Boys	Girls	Total	
12 yrs. 6 mos. to 13 yrs.	1	1	30 left school under usual compulsory education period.
13 yrs. to 13 yrs. 6 mos.	1	2	3	
13 yrs. 6 mos. to 14 yrs.	10	16	26	
14 yrs. to 14 yrs. 6 mos.	10	28	38	125 left school from one to 2½ years after the usual compulsory education period.
14 yrs. 6 mos. to 15 yrs.	18	19	37	
15 yrs. to 15 yrs. 6 mos.	22	10	32	
15 yrs. 6 mos. to 16 yrs.	3	4	7	
16 yrs. to 16 yrs. 6 mos.	4	7	11	
Total	68	87	155	

Voluntary Efforts to Continue Education. To what extent do the boys and girls under 17 years of age, who are at work, voluntarily attempt to improve themselves? Do they attend night school, or pursue correspondence courses or draw books from the public library? In order to ascertain whether there was any relation between continuance of education in the ways suggested and the school attended before going to work, all facts obtained are presented in Table 17, under separate heads for those educated in Hammond or elsewhere, in either public or parochial schools or both.

In general, it will be noted that an astonishingly small number of the 155 boys and girls attend night school or pursue correspondence courses or draw books from the library, and that taking advantage of these opportunities is practically limited to those educated in the Hammond public and parochial schools. This is doubtless true because those educated in Hammond are better acquainted with the opportunities provided. Considering the number of boys and girls under 17 years of age who have not been educated in Hammond, the question may well be raised as to whether the public library is doing all in its power to meet the needs of these young people. As night school classes are not particularly designed for those under 17 years of age, it is not surprising that relatively few of these ages attend this school, neither is it to be expected that youths under 17 years should

TABLE 17
Number of Boys and Girls Enrolled in Night Schools, Correspondence Courses or Who Draw Books from the Public Library. B. Boys—G. Girls.

PLACE EDUCATED	Attended Public Schools						Attended Parochial Schools						Attended Both Public and Parochial Schools					
	Pursue Courses						Pursue Courses						Pursue Courses					
	Night School			Correspondence School			Night School			Correspondence School			Night School			Correspondence School		
	B	G		B	G		B	G		B	G		B	G		B	G	
Hammond.....	8	9	1	1	1	8	5	4	12	2	1	1	1	2	2	1	1	1
United States (other than Hammond)...	2	..	..	..	..	3	3	3	..	..	..	..	..	..	1	..	..	..
Abroad.....	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..
Total.....	10	9	1	1	1	11	8	7	12	3	1	1	1	2	3	1	1	1

attend night school in great numbers after having worked from eight to ten hours during the day.

§ 2. Specific Work of Boys and Girls

Work of Boys and Girls. The exact work of all boys and girls under 17 years of age employed in Hammond during the month of January is indicated in Tables 19, 20 and 21.

Attention is called to the fact that since leaving school and starting to work,

7 boys and 17 girls have held 3 jobs
23 boys and 17 girls have held 2 jobs
39 boys and 55 girls have held 1 job

In some larger cities it has been found that many boys and girls under 17 years of age have held as many as ten jobs.

Glancing down the columns of these tables in the lines indicating the length of time of holding the first, second and third jobs, it will be noted that the period varies from one week to thirty months. The extent of variation is about the same among those boys having held three jobs as those having held but two. The facts indicate little permanence in the work of the boys and girls of this age in the time of holding jobs.

Do boys and girls in changing from one job to another choose work of the same type? Glancing down the columns indicating the nature of the work of each job, there are indications of a slight tendency in this respect. Thus, of the 7 boys having held two jobs and who are now holding the third; three worked each time in industrial work; one boy held two industrial jobs and one as messenger; one boy worked in three concerns as a messenger; and one in two places as a delivery boy and one in industry. Of the 17 girls having held three jobs; two girls were employed in three household pursuits; two in three places as store clerks; and three in three industrial pursuits. With both the boys and girls having held two jobs, there is also noted a slight tendency to seek similar employment each time. In observing these facts of similar employment, attention, however, should be called to the considerable number of boys and girls who have held two or three different types of jobs, and more particularly to the stars in the tables which indicate, that, though the employment is similarly classified, its nature may be different. This is particularly true of those whose second and third jobs have been in industrial establishments, where the great majority have

changed from one type of industrial work to another industrial pursuit of an entirely different nature, involving different materials, skills and processes and different finished products.

Classification of Work. Upon the basis of the present occupations of boys and girls in Hammond, work is classified as noted in Table 18. Attention is called to the marked preponderance of industrial workers.

TABLE 18

Classification of Work of Hammond Boys and Girls under 17 Years of Age

KIND OF WORK	Boys		Girls		Total	
	Number	Per cent.	Number	Per cent.	Number	Per cent.
Industrial.....	42	62.8	54	60.6	96	61.6
Clerical—office.....	13	19.4	19	21.1	32	20.6
Clerk in store.....	2	3.0	6	7.0	8	5.1
Delivery boy.....	3	4.4	...	....	3	1.9
Messenger boy.....	5	7.4	...	....	5	3.2
Errand boy.....	2	3.0	...	....	2	1.3
Houseworker—domestic.....	...	....	1	1.1	1	.6
Waitress.....	...	....	1	1.1	1	.6
Store wrapper.....	...	....	7	8.0	7	4.5
Cash girl.....	...	....	1	1.1	1	.6
Total.....	67	100.0	89	100.0	156	100.0

The following tables contain detailed records of the school and working history of the boys and girls now at work in Hammond. From the facts of school history retardation may be computed.

TABLE 19, PART 1
 Record of 7 Boys Under 17 Years of Age Who Have Held Three Jobs
 Age Leaving School; Grade Completed; Number of Months since leaving School; Number of Months Worked
 in Each Job and Nature of Work

Boy No.	SCHOOL HISTORY			WORKING HISTORY				
	Age Leaving School		Grade Completed	Number of Months Worked at Each Job				Nature of Work
	Years	Months		First Job	Second Job	Third Job	Total Months Worked	
1	14	10	8th	1	3	4	8	I* Helper, hard bindery.
2	14	10	7th	1	6	12	19	C Order boy.
3	14	2	Paroch.	3	4	7	14	I* Nutter.
4	14	1	6th	.	.	32	.	I* Nutter.
5	14	5	Paroch.	5	6	8	19	M Messenger.
6	14	6	Paroch.	5	2	3	10	D I Plating dept. helper.
7	14	11	6th	4	9	9	22	I* Helper, soft bindery.

EXPLANATION OF SYMBOLS

Paroch.—Attended parochial school and grade not recorded.

I.—Industrial work in each job entirely different.

C.—Clerical work—office.

CS.—Clerk in store.

D.—Delivery boy.

M.—Messenger boy.

E.—Errand boy.

S.—Salesman.

Note.—It will be noted from the tables that some boys are reported as having worked for a period of time longer than has elapsed since leaving school. This is probably due to errors in reporting time employed in various jobs.

TABLE 19, PART 2
Record of 17 Girls Under 17 Years of Age Who Have Held Three Jobs

Girl No.	SCHOOL HISTORY			WORKING HISTORY						
	Age Leaving School	Grade Completed	Months Since Leaving School	Number of Months Worked at Each Job				Nature of Work		
				First Job	Second Job	Third Job	Total Months Worked	First Job	Second Job	Third and Present Job
1	14	3	31	24	..	..	24	..	..	Bindery, inspection dept.
2	15	4	19	5	6	7	18	..	..	Cutter off, bindery.
3	14	3	31	9	4	20	33	I*	I*	Clerical.
4	14	10	16	1	2 wk	3	4½	I*	HW	HW House work.
5	13	11	37	9	5	11	25	I*	I*	Labeler.
6	13	5	31	3ds	3	5	8	I*	I*	Labeler.
7	14	7	19	6	3	15	27	CS	CS	Clerk in store.
8	15	4	19	9	12	4	25	..	..	Bindery, inspection dept.
9	15	..	19	2	12	1	15	I*	I*	Clerk in store.
10	13	10	21	1	9	10	20	I*	I*	Clerk in office.
11	16	2	7	1wk	3wk	4	5	CS	CS	Clerk in store.
12	14	7	19	4	2	12	18	HW	W	Waitress.
13	14	5	19	..	..	18	18	CG	CG	Shirt trimmer.
14	13	11	31	4	3	14	21	I*	I*	Shirt trimmer.
15	14	9	19	4	13	2	19	I*	I*	Clerk in store.
16	15	..	23	..	2	14	16	..	..	Clerk in office.
17	13	11	19	9	3	1	13	..	..	Clerk in office.

EXPLANATION OF SYMBOLS

I—Industrial work.
C—Clerical work in office.
CS—Clerk in store.
SW—Store wrapper.
*Industrial work in each job different.

HW—House work.
W—Waitress.
CG—Cash girl.

TABLE 20, PART 1
Record of 23 Boys Under 17 Years of Age Who Have Held Two Jobs

SCHOOL HISTORY				WORKING HISTORY					
Boy No.	Age Leaving School		Grade Completed	Months Since Leaving School	Number of Months Worked at Each Job			Nature of Work	
	Years	Months			First Job	Second Job	Total Months Worked		
								First Job	Second and Present Job
1	14	11	Paroch.	19	3	17	20	I*	I* Helper, hard bindery.
2	14	6	Paroch.	19	1	20	21	I	C Stock room helper.
3	14	8	Paroch.	13	18	2	20	I*	I* Common laborer.
4	15	5	7B	7	2	3	5	E	Errand boy.
5	13	10	Paroch.	34	..	16	..	I*	I* Bolt threader.
6	15	5	Paroch.	7	..	6	6	I*	I* Nutter boy.
7	14	4	Paroch.	13	5	12	17	I*	I* Chemical labor helper.
8	16	1	Paroch.	7	3	4	7	I	M Messenger.
9	15	5	8th	7	6	2	8	C*	C* Clerical work.
10	13	11	7th	31	24	3	27	O	D Delivery boy.
11	14	8	Paroch.	19	8	3	11	I	I* Helper car plant.
12	15	1	Paroch.	13	6	5	11	D	C Stock room helper.
13	13	5	Paroch.	19	6	1	7	D	C Stock room helper.
14	15	3	Paroch.	19	3	12	15	M	C Telephone operator.
15	14	10	Paroch.	19	9	6	15	CS	CS Clerk in store.
16	15	0	Paroch.	28	7	15	22	I*	I* Nailing machine operator.
17	13	11	Paroch.	22	3	12	15	E	E Errand boy.
18	14	0	7th	8	2	5	7	E	M Messenger.
19	14	8	Paroch.	19	3	17	20	E	I Helper hard bindery.
20	15	3	5th	13	18	4	22	I*	I* Bindery smash. machine.
21	15	3	Paroch.	19	12	8	20	M	C Bindery, inspection department.
22	15	9	7th	12	6	6	12	C	I Drawing plugs R. R. Signal.
23	13	2	Paroch.	19	2	6	8	CS	D Delivery boy.

For Explanation of Symbols see foot-note page 50.

TABLE 20, PART 2
Record of 17 Girls Under 17 Years of Age Who Have Held Two Jobs

SCHOOL HISTORY				WORKING HISTORY				
Girl No.	Age Leaving School		Grade Completed	Months Since Leaving School	Number of Months Worked at Each Job			Nature of Work
	Years	Months			First Job	Second Job	Total Months Worked		First Job
1	14	11	Paroch.	19	7			Clerk in office.
2	13	11	8th	31	16		C	Clerk in office.
3	13	11	Paroch.	29	8	20	I*	Labeller.
4	14	11	7th	24	3	21	I	Filling orders.
5	13	11	Paroch.	33	2wk.	21	I	Labeller.
6	16	0	Paroch.	7	4	4	I*	Tablet counter.
7	14	8	Paroch.	23	1	19	C	Clerk in office.
8	13	11	Paroch.	19	5wk.	17	C	Clerk in office.
9	14	3	5th	31	1wk.	16	..	Covering, machine bindery.
10	15	9	Paroch.	7	18	4	..	Stitcher, bindery.
11	13	6	7th	34	8	24	CS	Stamper, bindery.
12	14	7	Paroch.	7	1	6	I	Clerk in office.
13	..	..	6th	..	1	29	C	Clerk in office.
14	12	6	Paroch.	33	8	6wk.	I*	Shirt sewer.
15	14	5	Paroch.	7	8	1	I*	Shirt trimmer.
16	14	1	8th	19	8	7	I*	Shirt trimmer.
17	..	..	Paroch.	..	2	5	I*	Shirt folder.

For Explanation of Symbols see foot-note page 51.

TABLE 21, PART 1
Record of 39 Boys Under 17 Years of Age Who Have Held One Job

Boy No.	School History				Working History	
	Age Leaving School		Grade Completed	Months Since Leaving School	Number of Months Worked at this Job	Nature of First and Present Work
	Yrs.	Mos.				
1	13	11	Paroch.	19	18	C Office boy.
2	14	4	7th	7	8	I Helper stock room.
3	15	11	7th	7	10	I Inspection, bindery.
4	15	1	Paroch.	19	24	I Proof press boy.
5	15	10	8th	11	4	I Electrician's helper.
6	..	..	Paroch.	..	24	M Messenger.
7	14	7	7th	8	10	C Office boy.
8	15	4	6th	7	8	I Helper, bindery.
9	14	8	Paroch.	4	5	I Helper on shears.
10	14	5	8th	7	6	C Office work.
11	15	11	Paroch.	7	7	C Office work.
12	15	1	1st H. S.	19	14	S Salesman.
13	13	11	Paroch.	7	6	I Instrument maker helper.
14	15	2	8th	21	10	I Machine operator.
15	16	4	6th	7	8	I Cigar maker helper.
16	14	5	7th	4	2 wks.	I Packer, factory.
17	15	2	Paroch.	7	7	I Packer, factory.
18	15	1	Paroch.	7	3	I Packer, factory.
19	13	7	8th	7	3	CS Clerk in store.
20	15	6	8th	7	2	CS Genl. work, retail store.
21	14	6	6th	14	18	C Order boy, grocery store.
22	15	3	8th	7	5	I Bundling shirts.
23	14	10	Paroch.	31	30	C Office boy.
24	15	..	8th	19	5	M Messenger.
25	16	8	7th	8	8	I Floorman, car plant.
26	16	2	.....	20	16	I Tailor's helper.
27	13	11	6th	31	24	I Cutting caps R. R. signals.
28	13	10	Paroch.	19	20	I Case making, bindery.
29	15	2	Paroch.	7	8	I Helper, hard bindery.
30	15	0	6th	19	20	I Covering machine, bindery.
31	14	8	6th	7	8	I Trimmers, bindery.
32	15	7	7th	7	10	I Helper trimmers, bindery.
33	14	11	6th	19	20	I Helper trimmers, bindery.
34	14	4	Paroch.	19	20	I Piling books, bindery.
35	13	8	Paroch.	8	5	I Stock room, bindery.
36	15	3	6th	19	20	I Trimmers helper, bindery.
37	15	6	Paroch.	7	7	I Trimmers helper, bindery.
38	14	8	8th	16	..	I Rolling tubes, R. R. signals.
39	13	2	Paroch.	19	18	D Delivery boy.

TABLE 21, PART 2
Record of 55 Girls Who Have Held One Job

Girl No.	School History				Working History	
	Age Leaving School		Grade Completed	Months Since Leaving School	No. Months Worked at this Job	Nature of First and Present Work
	Yrs.	Mos.				
1	16	2	Paroch.	7	7	C-File clerk.
2	14	2	6th	19	20	I-Cutter off for sewers, bindery.
3	15	9	Paroch.	13	17	C-File and bill clerk.
4	14	1	Paroch.	19	20	I-Bindery inspector.
5	16	4	Paroch.	7	8	I-Bindery inspector.
6	13	11	8th	19	3	I-Copy holder.
7	15	0	Paroch.	7	8	I-Laborer.
8	14	10	7th	21	22	I-Chemical Work.
9	14	2	7th	21	22	I-Cutter off for sewers, bindery.
10	14	3	7th	20	4	I-Bindery stamping dept.
11	14	1	Paroch.	9	10	C-Office clerk.
12	15	7	Paroch.	7	2	I-Bindery, stitcher helper.
13	13	9	Paroch.	9	2	I-Bindery, stitcher helper.
14	14	1	Paroch.	7	8	I-Jogger, bindery.
15	14	5	3d	9	9	I-Helper sewing mach. bind.
16	14	1	Paroch.	25	3	I-Helper sewing mach. bind.
17	..	..	Paroch.	..	30	I-Button hole operator, shirts.
18	14	11	8th	19	19	I-Labeler.
19	15	10	8th	7	5	I-Chemical, work.
20	13	7	8th	7	2 wks.	I-Chemical, tablet counter.
21	15	3	8th	17	17	C-Clerk in office.
22	15	2	8th	21	2	CS-Saleslady.
23	14	7	Paroch.	7	8	I-Bindery inspector.
24	16	0	Paroch.	7	4	C-Card filer.
25	15	5	8th	7	8	C-File clerk.
26	14	3	Paroch.	19	7	I-Bindery stitcher helper.
27	14	7	Paroch.	7	8	I-Bindery, piling books.
28	14	8	6th	9	9	I-Covering machine helper.
29	14	6	6th	7	6	I-Jogger, bindery.
30	14	1	7th	12	8	I-Jogger, bindery.
31	14	6	Paroch.	19	6	I-Jogger, bindery.
32	13	5	Paroch.	31	24	I-Jogger, bindery.
33	15	3	Paroch.	19	20	I-Cutter off for sewers.
34	14	4	Paroch.	7	8	I-Cutter off for sewers.
35	13	9	Paroch.	31	30	I-Collator, bindery.
36	14	0	7th	21	17	I-Cap stitcher R. R. signals.
37	14	11	6th	16	23	I-Bonetting fuses R. R. signals.
38	..	..	6th	..	1	C-Stenographer.
39	14	5	8th	7	12	I-Collar turning.
40	14	8	Paroch.	16	18	I-Winding bobbins.
41	14	4	Paroch.	10	6 wks.	I-Trimming shirts.
42	14	0	Paroch.	22	19	I-Collar trimming.
43	13	5	4th	19	12	I-Collar trimming.
44	14	2	Paroch.	7	1	I-Attending.
45	14	4	Paroch.	10	6	SW-Store wrapper.
46	14	8	Paroch.	9	8	SW-Store wrapper.
47	14	4	Paroch.	9	7	CG-Cash Girl, store.
48	14	6	Paroch.	21	21	C-Stamp girl, store.
49	15	6	Paroch.	19	17	SW-Store wrapper.
50	14	1	7th	31	19	SW-Store wrapper.
51	13	9	Paroch.	31	6	SW-Store wrapper.
52	16	4	Paroch.	7	9	SW-Store wrapper.
53	14	5	Paroch.	19	15	SW-Store wrapper.
54	16	4	7th	7	6	C-File clerk.
55	14	10	8th	19	17	I-Bonetting fuses, R. R. signals.

CHAPTER IV

PART TIME EDUCATION

The facts recorded in the previous chapter were collected to indicate the general industrial situation in Hammond and to assist in determining the wage earning pursuits open to young people and also to establish a fact basis for the discussion of part time education as defined and provided for in the Indiana Vocational Education Law.

§ 1. Summary of Facts of School and Working History

There are several outstanding facts concerning the school and working histories of boys and girls between the ages of 14 and 16 at work in Hammond during January, 1915.

First. The Number at Work. There were 159 boys and girls reported at work. In all probability, if records had been obtained from those in domestic service as well as those temporarily out of work, this number would have been increased to 250.

Second. More Girls Than Boys at Work. There were 90 girls and but 69 boys at work. In this connection, mention should be made of the fact that there were more boys than girls enrolled in the upper grammar grades in the Hammond public schools. Also, the season of industrial depression affected to a greater degree, the lines in which boys are ordinarily employed.

Third. Majority of Boys and Girls Unknown to the Hammond Public Schools. A scheme of part time education reaching all young people under 17 years of age would bring into the public schools a group of boys and girls entirely unknown to them previously, as 114 of the 159 now at work, have never attended the Hammond public schools.

Fourth. Majority Are Native Born of Foreign Parentage. While very few of the boys and girls were born in Hammond, most of them were born in the United States, but the great majority of the parents were born abroad.

Fifth. They Have Attended School Past the Compulsory Education Period, But Have Been Retarded. The great majority of these boys and girls at work in Hammond have attended school from one to two and a half years longer than the compulsory education period, but those who attended public schools were considerably retarded, and in all probability, those educated in other schools were equally retarded.

Sixth. Few Make Voluntary Efforts to Continue Their Education. Attempts to continue education and to embrace opportunities for improvement are practically limited to those educated in Hammond, and, as previously noted, these comprise but few of those at work in the city.

Seventh. Employment is Characterized as Jobs. The majority of the boys and girls are employed in jobs and pursuits, which in themselves, do not lead to vocations.

Eighth. Laws of Chance Operate in Selecting, Retaining and Changing Employment. There seem to be no constant factors operating in selecting work, and there certainly are none in retaining work or shifting from job to job.

Ninth. Majority Work in Industrial Pursuits. Between 60 and 65 per cent. of the boys and girls were engaged in industrial pursuits.

§ 2. Legal Provision for Part Time Education

According to the Indiana Vocational Education law, a part time class "in an industrial, agricultural or domestic science, school or department, shall mean a vocational class for persons giving a part of their working time to profitable employment and receiving in the part time school or department, instruction complementary to the practical work carried on in such employment."* To insure attendance in such part time classes, the law provides that "In case the Board of Education or township trustee of any city, town or township have established approved vocational schools for the instruction of youths over fourteen years of age who are engaged in regular employment, in part-time classes, and have formally accepted the provisions of this section, such board of trustees are authorized to require all youths, between the ages of fourteen and sixteen years who are regularly employed, to attend school not less than five hours per week, between the hours of 8 a. m. and 5 p. m. during school term."†

* Vocational Education Law, Section 1, Part 8.

† Ibid—Section 11.

These provisions of the Indiana Law have occasioned wide discussion and debate. Some educators have taken the position that the majority of young people of the ages specified in the Act, were engaged in work of such a nature that related education is either unnecessary or impossible, or, that even though some boys and girls were employed in pursuits for which complementary education could be provided, many might profit most by some form of vocational education other than that related to the day employment, as the present employment might have been selected by chance, or as a temporary expedient, and therefore does not represent the permanent interests or ambitions of the individuals.

§ 3. The Limitations of the Present Law

Complementary Part Time Education. Assuming that the Hammond Board of Education earnestly desired to initiate part time education as authorized by the Vocational Law, what part time education could be provided? The first difficulty is in the definition of the term "complementary." These questions arise: In what respects must it be complementary? Must it relate to health, hygiene, to guarding machines and avoiding accidents, or to honesty, morals or must it be limited to technique in manipulating work? The State Board has partly defined its position regarding the meaning of this term: "That the training received is added to the technical knowledge or skill of the worker. That the data for school instruction must be taken directly from the practice of up to date industrial establishments. That at least one study in the course deals directly with the training for citizenship."*

Pursuits of Hammond Young People for Which Complementary Education Could and Could Not Be Provided. Upon the basis set forth in the Law and Vocational Bulletin No 4, it is thought that complementary part time education could be provided as indicated in Tables 22 and 23. These conclusions are reached from a direct study of the schedules filled out by the young people, which contains more specific data concerning occupations than are recorded in the tables of the previous section. A study of the work of young people while visiting the factories, also assisted in determining whether or not complementary education was necessary or possible.

* Bulletin No. 6, Vocational series No. 4, page 24, Department of Public Instruction, Indianapolis, Indiana.

TABLE 22

Number of Boys for Whom Complementary Part Time Education Could and Could Not be Provided

PURSUITS	Number Employed	Number for Whom Complementary Education	
		Could Be Provided	Could Not Be Provided
Industrial.....	42	19	23
Clerical—office.....	13	13*	..
Clerks in stores.....	2	2*	..
Delivery boys.....	3	..	3*
Messenger boys.....	5	..	5*
Errand boys.....	2	..	2*
Total.....	67	34	33

Specific Boys' Pursuits. In order to indicate exactly the nature of the industrial work for which it is thought complementary education could and could not be provided according to the law, the specific industrial employment of all boys is indicated below:

Specific Work of 19 Boys for Whom Complementary Education Could Be Provided

Helpers' hard bindery.....	11
Electricians' helpers.....	2
Stock boys.....	2
Becker boys.....	1
Tailors' helpers.....	1
Proof press boys.....	1
Instrument makers' helpers.....	1
Total	19

* According to the Law, there is doubt as to whether these phases of work could be classed as industrial when boys are engaged in them. Specific provisions, however, are made for girls' work of this nature. See Vocational Law, Section 1, Clause 2.

**Specific Work of 23 Boys for Whom Complementary Education
Could Not Be Provided**

Nutter boys.....	3
Factory packers.....	3
Plug drawers, etc., R. R. signals.....	3
Helpers, soft bindery.....	1
Common laborers.....	1
Bolt threader.....	1
Helper, car plant.....	1
Nailing machine operator.....	1
Helper, smashing machine.....	1
Helper, bindery inspection.....	1
Helper, shearmen.....	1
Machine operator.....	1
Floorman.....	1
Helper, cigar maker.....	1
Shirt binder.....	1
Piling books.....	1
Covering machine helper.....	1
Total	23

Specific Boys' Classes Needed. In order to meet the needs of the 19 boys it would be necessary to establish 7 separate classes: printing, bookbinding, electrical construction, instrument making, tailoring, industrial chemistry and stock room work. According to the law, men under 25 years of age could attend these classes and thus the enrollment in each might be somewhat greater than indicated.

TABLE 23

**Number of Girls for Whom Complementary Part Time Education Could
and Could Not Be Provided**

PURSUITS	Number Employed	Number for Whom Complementary Education	
		Could Be Provided	Could Not Be Provided
Industrial.....	54	3	51
Clerical—office.....	19	19	..
Clerk—store.....	6	6	..
Houseworker.....	1	1	..
Waitress.....	1	1	..
Store wrapper.....	7	..	7
Cash girl.....	1	1	..
Totals.....	89	31	58

Specific Girls' Pursuits. The specific industrial pursuits of the fifty-four girls for whom it is thought part time education on a complementary basis could and could not be provided are indicated as follows:

Specific Work of Three Girls for Whom Complementary Education Could Be Provided

Copy holder.....	1
Chemical work.....	2
Total	3

Specific Work of Fifty-one Girls for Whom No Complementary Education Could Be Provided

Helper, sewing machines, bindery.....	9
Labellers	5
Inspectors, bindery.....	5
Joggers	4
Cap bonneters and stitchers, R. R. signals.....	4
Shirt trimmers.....	4
Collar turners.....	4
Stampers	3
Stitchers, bindery.....	2
Helpers, covering machine.....	1
Shirt sewer.....	1
Shirt folder.....	1
Laborer	1
Button hole operator.....	1
Attender	1
Tablet counter.....	1
Book piler.....	1
Covering machine helper.....	1
Collator	1
Bobbins Winder.....	1
Total	51

Specific Girls' Classes Needed. In order to meet the needs of the girls it is thus seen that five classes would have to be formed: copy holding, industrial chemistry, office clerical work, salesmanship and domestic work.

What Types of Part Time Education are Needed in Hammond? The wisdom of the Indiana law in providing vocational part time education is demonstrated, in view of the number of years most children, who are now at work, have spent in school and their progress through the grades. Complementary vocational education as defined in the law, could be provided for 19 of the 42 boys in industrial work and for all of the boys in office clerical and store work, provided these fields fall within the Act. In the case of the girls, complementary education could be

provided for 3 of the 54 in industrial pursuits, for none of the store wrappers, and for all those in clerical, store, and domestic pursuits. If part time homemaking courses come within the provisions of the law, then, of course, all working girls would be reached.

Attention has previously been called to the chance element in the selection of all jobs and in the length of time of holding them. If the boys and girls who are now at work had had the opportunities, before leaving school, of pursuing various types of pre-vocational courses, and then upon leaving school, if they had selected work in keeping with their interests, and if this initial work tends ultimately to a real vocation, then complementary part time education would definitely minister to their real needs and would assist them in achieving promotion and success. In the absence of well rounded pre-vocational courses, and the limited number of jobs open to young people which lead to real vocations, and with the difficulty of finding such jobs immediately upon leaving school, it seems that the law as now phrased does not meet the needs of the majority of young workers in Hammond. The present provisions of the law, however, might help many young people to become better fitted for their present work, but even so, we are not assured, in the cases of these young people, of the fact that their present work is suited to their interests and capacities.

Compulsory Law Needed. The present part time law is permissive, in the respect that it permits a Board of Education to establish a part time vocational school for youths over 14 years of age who are engaged in regular employment. This section of the law is to be valued as a statement of principle, but in all probability few Boards of Education will establish part time schools according to this Act.

It seems to the writer, that what is needed, is a compulsory law which will affect all young workers, regardless of the type of the day employment, and which will provide courses in keeping with the interests, ambitions and capacities of such workers.

Since the continued education of those who leave school to go to work is a matter of such vital importance to both the worker and the employer, it is very essential that careful studies be made of the true needs of the young people under 17 years of age, in order to determine what modifications should be made in the law.

CHAPTER V

THE CHILDREN ENROLLED IN THE HAMMOND SCHOOLS

PART 1. GENERAL FACTS OF ENROLLMENT AND CLASSIFICATION

School Enrollment. There were 3,743 pupils enrolled in the public schools of Hammond upon the opening of the fall term of 1914. Of this number, 1,929 were boys and 1,914 girls. There are eight parochial schools in Hammond in which there were enrolled in January, 1915, 2,328 pupils; 1,098 boys and 1,230 girls. The entire public and parochial school population is therefore about 6,071 pupils, of which 55 per cent. are enrolled in public and 45 per cent. in parochial schools. The distribution of this entire enrollment is indicated in Table 24.

TABLE 24
Enrollment of Boys and Girls in Public and Parochial Schools

School and Grades	Total	Boys	Girls
Elementary Grades.....	3,419	1,775	1,644
High School.....	324	154	170
Parochial Schools.....	2,328	1,098	1,230
Total.....	6,071	3,027	3,044

Parochial School Pupils. The number of boys and girls of each age enrolled in the parochial schools is indicated in Table 25.

TABLE 25
Ages of Boys and Girls Enrolled in Parochial Schools

AGE IN YEARS	Number of Each Age	
	Boys	Girls
5.....	22	19
6.....	116	113
7.....	136	146
8.....	148	147
9.....	143	146
10.....	132	169
11.....	121	143
12.....	126	126
13.....	83	88
14.....	55	63
15.....	16	43
16.....	....	14
17.....	....	8
18.....	....	5
Total.....	1,098	1,230

Ages of Public School Pupils. The number of boys and girls of each age enrolled in the Hammond schools, irrespective of school grade, is indicated in Table 26.

TABLE 26
Age Distribution of Public School Pupils

AGE IN YEARS	Number of Each Age	
	Boys	Girls
3 and 4.....	46	70
5.....	141	114
6.....	183	184
7.....	232	192
8.....	189	173
9.....	197	177
10.....	183	170
11.....	158	175
12.....	140	157
13.....	142	140
14.....	157	106
15.....	71	73
16.....	62	46
17.....	13	17
18.....	9	14
Over 18.....	6	6
Total.....	1,929	1,814

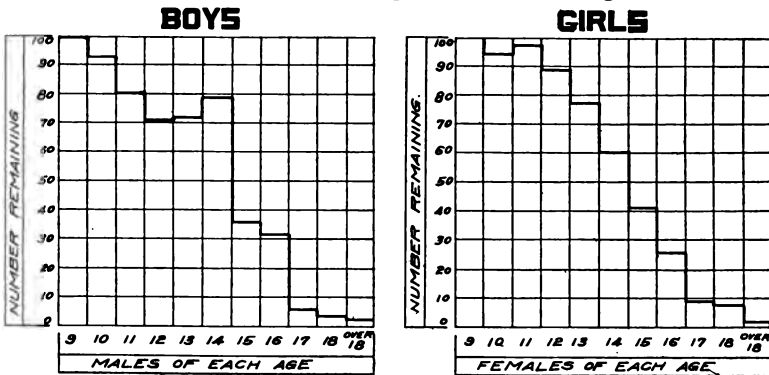
Elimination of Public School Pupils. There should be about the same number of pupils in the seventh and eighth grades as in the third and fourth but for the following reasons: a normal increase in birth rate which increases the number of young children, the older ones being eliminated by death; the removal from school for various reasons of the upper grammar grade pupils; transference to and from other systems; interchange between public and parochial schools and business colleges; and absence on account of sickness and abnormality.

It will be noted from Table 26 that the number of boys is fairly constant till the age of 11 is reached, at which age there is a considerable reduction. From 11 to 14, the enrollment remains practically constant, but at the age of 15 there is a drop of one half, this being the age at which pupils may qualify for working permits. The number of 15 and 16 year old boys is about the same, but at the age of 17 years there is a reduction of about two-thirds, probably accounted for by boys going to work. For the girls, the same facts hold true, with the exception that reduction in numbers to a marked degree does not begin till the thirteenth year is reached.

Assuming that the number representing the largest single age group is a fair base figure of the number entering (thus 197 boys, and 177 girls) the number per 100 of each age remaining in school is approximately as indicated in Table 27 and pictured in Chart 5.

CHART 5

Approximate Number of Each Age and Sex Remaining in School



An accurate measure of elimination is only possible by studying individual attendance records of all pupils in public and parochial schools taking into consideration all the various factors bearing upon attendance.

TABLE 27

Approximate Number of Each 100 Pupils of Each Age Remaining in School

AGE IN YEARS	Number Remaining	
	Boys	Girls
9.....	100	100
10.....	93	95
11.....	80	98
12.....	71	89
13.....	72	78
14.....	79	60
15.....	36	41
16.....	31	26
17.....	6	9
18.....	4	8
Over 18.....	3	3

Enrollment of Pupils by Grades. There should be about the same number of boys and girls in elementary grades as in the High School, barring late entrance to school, transferences to and from other systems and schools, retardation, elimination, etc. It will be noted, however, from Table 28, with respect to both boys and girls, that there are considerably fewer pupils in the seventh grade than in the previous grades; likewise considerably fewer in the eighth than in the seventh; fewer in the first year High School than in the eighth, and so on, till there is a mere fragment in the last High School year. Thus, boys and girls in considerable numbers drop out of the Hammond schools between the sixth and seventh grades, relatively few between the eighth grade and first year High School, and one half between second and third High School years.

TABLE 28
Enrollment by Grades of Public School Boys and Girls

SCHOOL GRADE	Number in Each Grade	
	Boys	Girls
Kindergarten.....	207	215
First grade.....	340	293
Second grade.....	229	210
Third grade.....	235	191
Fourth grade.....	202	181
Fifth grade.....	179	177
Sixth grade.....	184	179
Seventh grade.....	118	122
Eighth grade.....	81	76
First High School.....	69	77
Second High School.....	43	49
Third High School.....	21	18
Fourth High School.....	21	26
Totals.....	1,929	1,814

Extent of Overageness. Assuming that normally, those in the first grade are between six and seven years of age; in the second grade between seven and eight years; and so on until the eighth grade is reached, in which pupils are between 13 and 14 years; normal age pupils are considered those of the age and grade as indicated; overage pupils as those over these ages; and under age pupils as those under these ages, for the respective grades. The number of under age, normal and over age pupils in each grade, exclusive of those enrolled in the kindergarten, is indicated in Table 29.

TABLE 29

Boys and Girls Under Age, Normal Age and Over Age, in Each Grade

SCHOOL GRADE	Under Age		Normal Age		Over Age	
	Boys	Girls	Boys	Girls	Boys	Girls
First grade.....	13	1	274	242	53	50
Second grade.....	3	4	178	164	48	42
Third grade.....	7	7	163	142	65	42
Fourth grade.....	3	3	129	127	70	51
Fifth grade.....	7	6	100	110	72	61
Sixth grade.....	9	6	89	120	86	53
Seventh grade.....	4	12	66	85	48	25
Eighth grade.....	3	7	65	56	13	13
First High School.....	2	11	58	66	9	10
Second High School.....	3	3	33	39	7	7
Third High School.....	2	1	14	10	5	7
Fourth High School.....	8	9	11	13	2	4
Totals.....	64	70	1,180	1,174	478	365

The number of pupils in each grade who are one, two, three, four and over years over age is indicated in Table 30.

TABLE 30

Number of Pupils 1, 2, 3, or 4 Years Over Age in Each Grade

SCHOOL GRADE	Years Over Age—Boys					Years Over Age—Girls				
	1	2	3	4	Over 4	1	2	3	4	Over 4
First grade.....	34	8	7	1	3	25	12	10	...	3
Second grade.....	35	6	5	1	1	27	10	1	2	2
Third grade.....	43	15	3	2	2	22	12	4	2	2
Fourth grade.....	41	19	9	...	1	35	12	3	1	...
Fifth grade.....	34	18	18	2	...	30	16	10	4	1
Sixth grade.....	45	34	6	1	...	35	13	4	1	...
Seventh grade.....	36	11	1	...	...	16	7	2	...	...
Eighth grade.....	11	2	...	...	...	12	1	...	...	...
First High School.....	9	...	...	...	...	6	4	...	...	...
Second High School.....	6	...	1	...	...	6	1	...	...	...
Third High School.....	2	3	...	...	...	5	2	...	...	...
Fourth High School.....	2	...	...	...	...	4	...	...	...	...
Total.....	298	116	50	7	7	223	90	34	10	8

PART 2. FACTS CONCERNING 13 AND 14 YEAR OLD BOYS AND GIRLS

Significance of the Age Periods. The significance of a study of the 13 and 14 year old boys and girls in a school system has been clearly indicated by Dr. Leonard A. Ayres.* Noting the grade enrollment of 13 and 14 year olds, indicates the extent of school education which many of these children are apt to receive before leaving the system. The data concerning birthplaces of these children and their parents are valuable as a partial index to the probable stability of residence, as it might safely be assumed, if the present is an index of the future, that if children and parents were born in Hammond and persist in living there, that it might be wise to adopt vocational courses to the specific needs of Hammond industries, even though these industries were peculiar to that locality. The occupations of fathers is significant, first as an index of the work of the community, and second, as a basis for general prophecy concerning future vocations of children.

School Enrollment of 13 and 14 Year Old Pupils. There are thirteen year old boys and girls in all of the grades from the second in the elementary schools to the first year High School inclusive. The record of grade enrollment of these pupils by schools, however, shows that the wide distribution throughout all the grades is not characteristic of the system as a whole, but is largely limited to two schools having a large percentage of children unaccustomed to the English language and school room procedure. Of 142 thirteen year old boys, 74 are from one to four years behind their grades; and, of the 140 thirteen year old girls, 57 are from one to five years behind their grades. Fourteen year old boys and girls are enrolled in all grades from the first of the elementary school to the third of the High School inclusive, but, as in the case of the thirteen year olds, the over-ageness is particularly characteristic of two schools. Of the 157 fourteen year old boys, 90 are from one to seven years behind their grades; and, of the 106 fourteen year old girls, 44 are from one to seven years behind their grades. The facts of grade enrollment are contained in Table 31.

* The Public Schools of Springfield, Ill., Page 123, Russell Sage Foundation, New York, N. Y

TABLE 31
Grade Enrollment of 13 and 14 Year Old Boys and Girls

Number of 13 Years Old		GRADE ENROLLMENT	Number of 14 Years Old	
Boys	Girls		Boys	Girls
...	...	First grade.....	1	1
...	1	Second grade.....	...	1
2	2	Third grade.....	1	2
9	3	Fourth grade.....	...	1
18	16	Fifth grade.....	18	10
45	35	Sixth grade.....	34	13
38	44	Seventh grade.....	36	16
28	29	Eighth grade.....	37	27
2	10	First High School.....	27	31
...	...	Second High School.....	3	3
...	...	Third High School.....	...	1
142	140	Total.....	157	106

As, in the main, the average boys and girls are the ones first eliminated, it is significant to note that in all probability about one-half of the 13 year and 14 year old boys and girls will leave the schools before completing the fifth grade. The wisdom of starting girls' classes in cooking and sewing early in the grades is thus demonstrated. The fact that the boys and girls thus eliminated, enter, in the main, various industrial pursuits, as indicated from the study of the work of those under 17 years of age, points very directly to the need of completely revising all industrial courses, in order that children may have at least a preliminary introduction to industry: the materials used, manufacturing processes, wages, hours of labor, opportunity for promotion and hazards.

Birthplaces of Pupils and Their Parents. The data relative to birthplaces show that over 90 per cent. of the 13 and 14 year old boys and 86 per cent. of the girls were born in the United States. From the standpoint of vocational education it is obvious that the schools are facing the problem of educating children who are native born, that is, born somewhere in the United States. Of all the boys, 34 per cent. were born in Hammond; 20 per cent. in the State of Indiana (but not in Hammond); and 36.7 per cent. elsewhere in the United States. Of all the girls, 27 per cent. were born in Hammond; 16 per cent.

in the State of Indiana (but not in Hammond) ; and 42 per cent. elsewhere in the United States. Of the fathers of boys, 56 per cent., and of the girls, 60 per cent. were born in the United States; and of the mothers of boys, 55 per cent., and of the girls, 63 per cent. were born in the United States. It is thus seen, that while the great majority of the children are native born, the fathers and mothers of about one-third are foreign born. The facts of nativity are shown in Table 32.

TABLE 32
Birthplaces of Boys and Girls and Their Parents

BIRTHPLACES	Boys		Fathers		Mothers	
	Number	Per cent.	Number	Per cent.	Number	Per cent.
Hammond.....	73	34.3	3	1.4	...	.....
State of Indiana (Not Hammond).....	43	20.1	38	17.8	52	24.5
Other States in United States.....	78	36.7	78	36.7	65	30.5
Foreign Country.....	19	8.9	94	44.1	96	45.0
Total.....	213	100.0	213	100.0	213	100.0

BIRTHPLACES	Girls		Fathers		Mothers	
	Number	Per cent.	Number	Per cent.	Number	Per cent.
Hammond.....	53	27.4	...	.....	4	2.1
State of Indiana (Not Hammond).....	32	16.6	44	22.9	41	21.1
Other States in United States.....	81	42.0	70	36.2	74	38.4
Foreign Country.....	27	14.0	79	40.9	74	38.4
Total.....	193	100.0	193	100.0	193	100.0

Nativity of Foreign Born Children and Parents. Of the 46 foreign born 13 and 14 year olds, 14 were from Austria Hungary; 10, Russia; 8, Germany; and the remainder from 8 other countries. Of the 343 foreign born fathers and mothers, 150 were from Germany; 56, Austria; 41, Russia; 23, Sweden; 21, Canada; and the remainder from 14 other countries. These facts are indicated in Table 33.

TABLE 33

Birthplaces of Foreign Born 13 and 14 Year Old Children and Foreign Born Parents of 13 and 14 Year Old Children

BIRTHPLACES	Boys and Girls		Fathers and Mothers	
	Number	Per cent.	Number	Per cent.
Germany.....	8	17.39	150	43.73
Austria-Hungary.....	14	30.45	56	16.33
Russia.....	10	21.74	41	11.96
Sweden.....	2	4.35	23	6.70
Canada.....	2	4.35	21	6.14
England.....	1	2.17	11	3.22
Ireland.....	..	.....	7	2.04
Russian Poland.....	3	6.52	6	1.74
Norway.....	..	.....	5	1.45
Switzerland.....	..	.....	4	1.17
Servia.....	3	6.52	4	1.17
Scotland.....	..	.....	3	.87
Denmark.....	..	.....	2	.58
Unknown.....	1	2.17	2	.58
Macedonia.....	1	2.17	2	.58
Italy.....	1	2.17	2	.58
Poland.....	..	.....	2	.58
Greece.....	..	.....	1	.29
Holland.....	..	.....	1	.29
Total.....	46	100.00	343	100.00

Occupations of Fathers. The data relative to occupations of fathers of 13 and 14 year olds, are a reliable index to the general importance, from the standpoint of number employed, of the various types of community pursuits. The occupational classification here adopted is that used in the Reports of the 1910 United States Census. Manufacturing and mechanical pursuits include all phases of transforming materials; trade pursuits, all phases of buying and selling, work of agents, salesmen, etc.; transportation includes street car and railroad employees, chauffeurs, etc.; public service, the work of policemen, watchmen, etc.; professional service, doctors, lawyers, teachers, etc.; clerical work, stenographers, typists, etc.; agricultural pursuits, various phases of farming; and personal and domestic service, hotel and restaurant keepers, barbers, porters, cooks, servants, etc. It is significant to note that 61 per cent. of the Hammond fathers were engaged in manufacturing and mechanical pursuits; the next largest group in trades; the next, transportation; and a relatively small percent-

age distributed among the five remaining groups of occupations. The exact occupational distributions are indicated in Table 34.

TABLE 34

Occupations of Fathers of 13 and 14 Year Old Hammond Boys and Girls

OCCUPATIONS	Each Occupation	
	Number	Per cent.
Manufacturing and Mechanical.....	229	60.58
Trade.....	57	15.08
Transportation.....	50	13.23
Public Service.....	14	3.70
Professional Service.....	10	2.64
Clerical.....	8	2.13
Agricultural.....	7	1.85
Domestic and Personal Service.....	3	.79
Total all Occupations.....	378	100.00
Deceased.....	17	.....
Not Working.....	11	.....

Comparing the work of fathers of Hammond children with fathers of children in Richmond, Va., and Springfield, Ill., we note a much higher percentage are engaged in industrial pursuits in Hammond than the other two cities. These occupational distributions are indicated in Table 35.

TABLE 35

Occupations of Fathers of 13 Year Old Boys of Springfield, Illinois, and Fathers of 13 and 14 Year Old Children of Richmond, Virginia*

OCCUPATIONS	Richmond, Va.		Springfield, Ill.	
	Number	Percentage	Number	Percentage
Manufacturing and Mechanical.....	720	45.19	251	38.32
Trade.....	358	22.47	93	14.20
Transportation.....	205	12.86	77	11.75
Public Service.....	78	4.89	17	2.59
Professional Service.....	64	4.00	25	3.82
Clerical.....	85	5.33	31	4.73
Agricultural.....	...	.....	29	4.43
Domestic and Personal Service.....	59	3.70	29	4.42
Mining.....	24	1.56	103	15.72
Total all Occupations.....	1593	100.00	655	100.00

*White fathers.

Dr. Ayres found the average percentage of fathers, of 13 year olds engaged in industrial pursuits in 78 American cities, to be 51.6 per cent. The percentage of fathers so engaged in Hammond is thus about 10 per cent. higher than the average of the 78 cities studied.

Specific Industrial Pursuits of Fathers. The specific occupations of those listed under manufacturing and mechanical pursuits are indicated in Table 36.

TABLE 36
Specific Manufacturing and Mechanical Pursuits of Fathers

Occupations	Number Employed	Occupations	Number Employed
Not Specified.....	35	Boiler Maker.....	1
Mgr. Owners and Supt. and		Wood Cutter.....	1
Foremen.....	30	House Mover.....	1
Carpenters.....	24	Steamfitter.....	1
Laborers.....	24	Brander.....	1
Machinists.....	16	Telephone Man.....	1
Engineers.....	10	Stereotyper.....	1
Painters.....	6	Bridge Builder.....	1
Inspectors.....	5	Elevator Man.....	1
Electricians.....	5	Cement Finisher.....	1
Blacksmiths.....	5	Electrotyper.....	1
Plumbers.....	3	Pressman.....	1
Pumpers.....	3	Oiler.....	1
Hod Carriers.....	2	Bricklayer.....	1
Plasterers.....	2	Sign Painter.....	1
Printers.....	2	Plate Heater.....	1
Paper Hangers.....	2	Switchman.....	1
Stationary Firemen.....	2	Brickmaker.....	1
Cigar Makers.....	2	Fires in Still.....	1
Decorators.....	2	Miller.....	1
Bookmakers.....	2	Drill Press Operator.....	1
Cappers.....	2	Marker in Steel Mills.....	1
Craters and Packers.....	2	Cement Mixer.....	1
Car Builders and Re-		Cooper.....	1
pairers.....	2	Shipping Clerk.....	1
Gate-men and Watchmen..	3	Tinner.....	1
		Meat Cutter.....	1

Need for Industrial Courses. The need in the elementary school for general industrial instruction of a board nature, dealing with the fundamental aspects of the primal industries, is generally recognized and felt in the average American city. In view of the facts, however, the need for such courses in Hammond is much more imperative than in the average city; first, because of the relatively short school life of the children; second, because of the local importance of industrial pursuits; and third, because the greater per cent. of the children leaving school at an early age, enter industrial pursuits.

CHAPTER VI

PRESENT PROVISIONS FOR INDUSTRIAL, HOUSEHOLD AND ART INSTRUCTION IN THE ELEMENTARY, HIGH AND EVENING SCHOOLS

Assuming that vocational courses for the Hammond children must be articulated and related to the school system as a unit, it is essential to determine the scope, purpose, content and provisions in terms of equipment, teachers and supervisors for drawing, industrial and household art and other related courses now being taught. As such a large number of boys and girls in Hammond leave school and go to work even before the completion of the elementary period, it is especially important to note the provision made for general industrial courses in the lower grades, and for pre-vocational courses in the upper grades of the elementary schools.

The data upon which the following summaries and analyses of the present courses are based were derived from conferences with the Superintendent of Schools, supervisors, teachers, a careful study of course outlines and several days spent in class visitation. No attempt was made to definitely measure the quality of class room instruction.

Courses. The courses, grades in which they are taught, time allotment, etc., are outlined in Chart 6. With respect to all courses herein outlined, it must be clearly understood that the organization and content is not fixed, and that the Superintendent and principals do not require close adherence to outlines and uniformity of procedure in general method. Quite the opposite is true, as provisions are made for changes in method, organization and time schedules to meet the needs of particular districts and schools. For instance, while cooking and sewing are scheduled to start in the sixth grade, in the Wallace, Riverside and Lincoln schools, this work has been taught in the fifth, and with certain classes as low as the fourth grade and with certain pupils in the third grade. The outlines for all courses are mimeographed instead of printed, thus making possible frequent changes.

CHART 6
Courses, Grades and Time Allotments—Drawing, Industrial and Household Arts, Etc.
Hammond Schools

Grades	Drawing Boys and Girls	Elementary Industrial Work. Boys and Girls	Knife Work in Wood. Boys and Girls	Shop Wood Work Boys.	Mechanical Drawing. Boys	Sewing-Girls	Cooking-Girls	Printing Boys	Household Physics Girls
1	60 minutes weekly. Class teacher.	60 minutes weekly. Class teacher.							
2	Same	Same							
3	Same	Same							
4	Same	Same				Some schools to meet special needs.	Some schools to meet special needs.		
5	Same	Same	90 minutes weekly. Some schools. Class teacher.	80 minutes weekly. Some schools. Spe- cial teacher.		75 minutes weekly. Some schools. Spe- cial teacher.	75 minutes weekly. Some schools. Spe- cial teacher.		
6	Same			90 minutes weekly. All schools. Spe- cial teacher.	90 minutes weekly. All schools. Spe- cial teacher.	90 minutes weekly. All schools. Spe- cial teacher.	90 minutes weekly. All schools. Spe- cial teacher.		

The elasticity of the system is indicated by the fact that during the school visits, no two classes of the same grade in different schools were observed doing the same type of work. Such elasticity is certainly commendable and will make possible necessary changes with a minimum of readjustment. At present, with the exception of the Franklin School, all eighth grades in the city are located in the Central School, which is also occupied by the High School.

Administration of Courses. The various courses are taught and supervised as indicated in Table 37.

TABLE 37
Teaching and Administration of Courses

Subject	Grades in Which Taught	Teacher	Supervisor
Elementary Industrial Work...	1st, 2d, 3d	Class Teachers.	Primary supervisor.
Elementary Industrial Work...	4th, 5th	Class Teachers.	Art Supervisor.
Drawing.....	1st, 2d, 3d	Class Teachers.	Primary Supervisor.
Drawing.....	4th, 5th, 6th, 7th, 8th.....	Class Teachers.	Art Supervisor.
Drawing.....	High School.....	Art Supervisor.	Art Supervisor.
Knife Work.....	5th.....	Class Teachers.	Shop Teacher. (1 man)
Shop Wood-work..	5th, 6th, 7th, 8th (High School)	Spec. Teachers. (3 men)	*
Mechanical Drawing.....	7th.....	Wood-shop Teachers..... (3 men)	*
Mechanical Drawing.....	8th, High School.	Spec. Teacher.. (1 man)	*
Sewing.....	5th, 6th, 7th.....	Spec. Teachers. (3 women) Also teach cooking.	*
Sewing.....	8th & High School	Spec. Teacher.. (1 woman)	*
Cooking.....	5th, 6th, 7th.....	Spec. Teachers. (3 women) Also teach sewing.	*
Cooking.....	8th & High School	Spec. Teacher.. (1 woman)	*

*No Supervision save as principals exercise this function, work being planned in conferences

PART 1. ELEMENTARY COURSES

Drawing, Grades 1 to 8. In the first seven grades drawing is taught by the class room teachers, being supervised and directed in the first three grades by the Primary Supervisor, and in the other grades by the drawing supervisor. A departmental teacher has charge of all the eighth grade classes, and her work is directed by the drawing supervisor. Sixty minutes per week are allotted to drawing in all of the first seven grades, and eighty minutes in the eighth.

The work in drawing in the first three grades is very closely related to other units of subject matter. The following brief extract from a section of the course of study prepared by the primary supervisor indicates this organic unity in the course.

First Grade, Types of Homes and activities centering about them.

1. Modern home:

a. Members of family and their duties in, or for the home, showing interdependence. Illustrate with blackboard drawing, crayons and paper cutting.

b. The home as worked out in making of the playhouse: arrangements of rooms, lighting, ventilating, etc.

Decoration of the house: make wall paper by tinting plain color or make striping by using ruler, or make simple-all-over pattern. Make border of simple unit. (See outline for arithmetic and special monthly outlines for art.)

Paint exterior of house. Discuss color as to beauty and to durability.

Furnishing: measure rooms to determine size of rugs needed. Use rugs made by third grade for living room. Weave mats, first of paper, then of raffia or rags using card-board looms. (See "Arithmetic" outline.) Design linoleum on squared paper. Make curtains of thin cloth or lace. Hem with running stitch.

Make necessary dishes of clay (free work) after having had directed lesson in making balls and bowls.

Cut people to live in house from plain paper or from pictures.

Some of the fathers or older brothers work in grocery stores, canning factories or other establishments relating to food distribution or preserving. The question "Where does the food come from?" leads to the study of the farm as the general source of supply of fruit, vegetables and grain. The more detailed work of harvesting and milling is left for the second grade as the children can use the corn and wheat grown in their own gardens and so complete the cycle.

The first grade study therefore will be concerned with the work about the house; the gathering and storing of fruit and vegetables and the care of animals.

Make farm scene in sand table, folding house and barn from paper, and make clay animals and people. Mold fruit and vegetables with clay. If possible make butter, cheese and cranberry sauce. Use at Thanksgiving time.

It will be noted, that the drawing units are really an organic part of the experiences of the children. The same spirit and purpose is embodied in the course for the second and third grades.

In the grades fourth to eighth, illustrative drawing of nature subjects from life and memory, color studies and design are appropriately introduced. Construction problems involving paper and cardboard in box making, simple bookbinding, etc., are also provided in each of the grades. Illustrative drawing is related to language and history work, and these subjects furnish the themes. Provision is also made for picture study. The following outline prepared by the drawing supervisor for the fourth grade for December is typical of the course in drawing in the upper grades.

Lettering

Lettering of names and addresses as suggested in the "General Notes." Use capital letters only.

Design and Handwork

1. Single section book to contain an original story. The inside leaves may be made from writing paper, the cover from drawing or rag paper, with appropriate decoration; conventionalized units derived from holly, evergreen trees, etc., adapted to problems.

2. Christmas greetings and mottoes. All the letters to be single line. The first letter of the word may be drawn one-third higher than the remaining letters. Simple decoration.

3. Christmas post cards. On $\frac{1}{4}$ " checked paper $3\frac{1}{4}$ "x $5\frac{1}{2}$ " cut designs. Color with crayons the plain side of the cuttings. Mount on post cards. Use holly wreath, basket, bell and mistletoe in designs.

4. Other Suggestions: Toys and seals, blotter tops, etc.

Illustrative Drawing

Stories of the season, language and history work.
Picture study.

The construction work in bookbinding and folder making in the seventh and eighth grades has art significance and might be organized so as to have industrial significance. Aside from the relation existing between the art and construction work as carried on in the class rooms by the class teacher under the art supervisor, there is no relation between the work in drawing and design and shop work for boys, and the sewing work for girls. This constitutes a deficiency from the standpoint of drawing, shop work, and sewing.

Industrial Work, Grades 1 to 5. The courses in industrial work in the first five grades are taught by the regular grade teachers, with the exception of those schools where fifth grade boys pursue shop work and fifth grade girls sewing and cooking. This work is planned and supervised in the first three grades by the primary supervisor and in the fourth and fifth grades by the art supervisor. The time allotment is sixty minutes per week, but in the first three grades, owing to the close correlation of the industrial work with other subjects, the time scheduled is not absolutely followed in a period definitely set apart for this work.

The course in the first grade includes projects in paper: booklets, envelopes, valentines, and playhouse furniture; projects in clay: fruits, vegetables, animals, and bowls; projects in yarn; rugs, etc.; and in addition, other materials and projects related to special days and those growing out of furnishing the playhouse. Provision is also made for outdoor gardening in the spring months.

In the second grade, paper is used in making booklets, envelopes, valentines, houses, barns, wagons, wind mills, etc.; clay, in making fruits, vegetables, animals, bowls, tiles, etc.; cotton roving, for bag weaving; Germantown yarn, in weaving doll caps and muffs and raffia in weaving hammocks. Textile study is continued with experiments involving washing, carding, spinning and dyeing wool and in pulling cotton from seeds and twisting fibres. Mitten strings are also made by spool weaving. Outdoor gardening is included.

The industrial work in the third grade involves the use of paper in making booklets, cards and envelopes; clay, in making tiles and bowls; yarn and cotton roving, in making rugs, etc.; and grasses, twigs and leaves in weaving baskets and mats. These last projects involve gathering the materials and dyeing and preparing them for use. Provision is made for outdoor gardening.

The work of the fourth grade involves the use of yarns and hand looms in weaving rugs and paper, and cardboard in simple binding problems, such as clipping cases and book covers.

The fifth grade work is largely limited to the use of paper and cardboard in simple binding, such as clipping cases and magazine covers.

There is a close correlation between the industrial work and other subjects, the first three grades in particular; for example, when the modern home is discussed in the history course, the playhouse is constructed and furnished in the industrial course. This particular unit is also closely related to the work in art and arithmetic. These relationships are so close and organic that the distinctions between the courses are difficult to determine. Again, when the work of the primitive shepherd is being presented under the topic of primitive life, the children are engaged in washing, carding and twisting yarn. Later in the course, where modern industries and local history are discussed, handwork is adapted to these ends.

In practically every unit of the industrial work in these grades, there is a close correlation with history, geography, literature, drawing and arithmetic. Needless to say, this correlation reduces waste, vitalizes and strengthens every phase of school room activity and is to be commended.

Knife Work in Wood, Grade 5. Knife work in wood is carried on in some of the fifth grades. It is limited to boys and is taught by the class teacher, a total of 90 minutes weekly being given to the subject. The work is outlined to the grade teachers by one of the shop teachers, who in turn present the plans to the children. The equipment for this work includes knives, try-squares, sand paper, tack hammers, pliers and stains. Soft wood is used and projects include plant labels, calendar mounts, match scratchers, chairs, tables, and sleds, none of which are large or strong enough for actual use. All of the period is devoted to manipulative work, there being no related design or study of materials.

The value of this work is to be seriously questioned; first, because it is in no respect typical of any phase of industry, save toymaking, and thus cannot assist in developing industrial intelligence; second, it is entirely barren of any form of content, such as study of materials, manufacturing processes, hours of labor, wages, etc.; and third, the product is of little practical value even to the children.

Shop Work in Wood, Grades 6, 7 and 8. The shop work in wood begins in the sixth grade but in some schools the fifth grades are included. In the sixth grade, one full morning weekly or 180 minutes, is given to this work, and in the seventh, a full morning or afternoon is evenly divided between wood shop work and mechanical drawing, thus allowing 90 minutes weekly to

each. In the eighth grade, the equivalent of a full half day, morning or afternoon, is given to shop work. This work is carried on in five shop centers and taught by three men teachers, school trained, with no trade or commercial shop experience. The five shop centers, La Fayette, Irving, Franklin, Jefferson and Central, are equipped with wood working benches, bench and general tools, in addition to which there are a power combination wood working machine and two speed lathes in the La Fayette school, two power lathes in the Irving School and a power platform saw in the Central School.

The wood working courses are of the traditional order and consist of exercises and simple projects, involving measuring, planing, sawing, nailing, gluing and joining. In the sixth grade these projects and exercises have been constructed: squaring a board, boring, making coat hanger, spool holder, counting board, scouring board, coat and trouser hanger, broom holder, and knife and fork box. The seventh grade projects include towel rollers, pen and ink stand, sleeve board, book rack, foot stool, picture frame, tabouret with cross lap joint and small magazine rack. Among the eighth grade projects are the camp stool, magazine stand, pedestal, umbrella stand and medicine cabinet. Joining and finishing are appropriately introduced in the proper grades by these projects.

In the La Fayette School, where two speed lathes are included in the equipment, the larger seventh grade boys use them on various woodturning exercises, such as cylinders, beaded forms, chisel handles, rolling pins, etc. In this school, larger boys are permitted to operate the band saw unit of the power wood worker, and the other machines are used by the instructor in preparing stock for pupils' work.

The same woodworking course is followed in the eighth grade, and in this grade some of the mechanical drawing is related to the shop work. In none of the grades is there any relation between the shop work and any phase of design. In none of the grades in which shop work is taught is there any study of materials, manufacturing processes, modern industries or industrial life of any sort. The shop work observed was of a high order from the standpoint of excellence of product and interest of pupils, but was of exactly the same scope and character as found in most cities and towns in the United States. A better adaptation to the needs of Hammond is obviously required.

The statement of the purpose of this work, however, as expressed in the introduction of the mimeographed course of study, is modern in conception:

"The purpose of the work for the boys in the seventh and eighth grades is to give them a knowledge of industrial practices and processes, and a knowledge of as many industries as possible. The child who must leave school at fourteen should here learn the kind of work in which he may hope to succeed, and the demands which this work will make upon him. The child who might leave school at fourteen because of lack of interest in school work may learn that the work which he craves is not what he imagines it to be, and that to succeed he must become better prepared for that work. This course is not opening the door and pushing the child into the industry but it enables the child to make a more intelligent choice of occupation when he opens the door for himself."

In order to realize this purpose, however, materials other than wood must be used, projects must be typical of modern industry, related industrial and social content must be introduced, provision must be made for shop and factory visits and shop teachers must have industrial experiences wider than can possibly be attained through school manual training courses.

Mechanical Drawing, Grades 7 and 8. Mechanical drawing is introduced in the seventh grade, is limited to boys, and taught by the shop teachers in the shop, except in the Central School where the mechanical drawing room is used, the instructor being the High School mechanical drawing teacher. In the eighth grade 90 minutes per week is given to the work, which is approached from a purely academic, systematic method and involves ruling lines: horizontal, vertical and diagonal; simple projections and lettering and plan drawing. There is little relation between this work and the shop problems. In the eighth grades, two 90 minute periods are devoted to mechanical drawing. In these grades some geometric and lettering exercises are introduced and much of the work is related to actual problems of making working drawings and estimating bills of stock for such projects as card holders, broom holders, bookracks, door details and library tables. Drawing to a scale other than one-half is here introduced. Units of building construction, such as cornices, etc., are drawn, the final problem being a floor plan and elevations of a cottage. The work observed in the eighth grade was of an especially high order, as plans were well thought out and splendidly executed from the standpoint of lines and lettering.

Further extension of the relation between the mechanical drawing and shop work would prove beneficial.

Cooking, Grades 5 to 8. In the fifth, sixth and seventh grades, one full morning or afternoon is divided between cooking and sewing, and in the eighth grade, two 90 minute periods weekly are given to cooking, and this work is required of all girls. This work is carried on in cooking laboratories in seven centers: Wallace, Lincoln, Riverside, Irving, Franklin, Washington and Central and is taught by special teachers, who, with the exception of the eighth grade and High School cooking teachers, also teach sewing. All cooking laboratories are located in the basements and some are equipped better than others.

Quoting from the outline of Domestic Science now in use:

"In the fifth and sixth grades the work is largely cooking, with little attention to the science of the work, but with considerable correlation with geography and nature study. In the seventh and especially in the eighth grades, considerable time should be devoted to the science underlying the preparation of food. Experiments should be made to show the chemical action of cooking foods."

In the fifth grade the care and use of the stove is considered and projects involve boiling and baking potatoes, canning fruit, preparing vegetables, cereals, doughs and batters, beverages, soups, meats, milk and eggs, and dried fruits.

The sixth grade outline includes consideration of personal appearance, hygiene, care of aprons and towels, etc., and the preparation of starch foods, cereals, soups, meats, milk and cheese, eggs and special summer dishes. Weights and scales are studied in some seventh grades and more difficult dishes are prepared.

The work in the eighth grade involves the study and application of principles of chemistry to food preparation, the study of the sanitation of the home, personal hygiene, as well as many projects involving actual food preparation.

The work in Domestic Science as outlined and carried out is considered of a high order, well adapted to the community; first, because as stated in the opening paragraph under the course of study, it is introduced and taught in the early elementary grades in those districts of the city where young girls are actually engaged in caring for homes; second, a study and preparation of all the fundamental foods is introduced in the fifth grades and this is especially important in Hammond as many girls are eliminated in the sixth grade; and third, all problems are very

practical, and are well adapted to the needs of the average home.

In some sections of the city, domestic science teachers and pupils frequently prepare lunches for the poor children of the district, and domestic science teachers often meet with Mothers' Clubs and the Women's Department Clubs for the purpose of helping them with practical problems in home making. This extension of the work of the department is to be highly commended.

Sewing, Grades 6 to 8. The work in sewing, while ordinarily starting in the sixth grade, is begun in some schools in the fifth grade. In the seventh grade, one full morning is evenly divided between sewing and cooking, while in the eighth grade, two 90 minute periods weekly are devoted to this work. Instruction in sewing is conducted by the cooking teachers in the cooking rooms with the exception of the Irving and Central Schools in which there are sewing rooms, and the Central School where the work is taught by the High School sewing teacher in the sewing room. Lack of adequate facilities, such as rooms, tables and lockers, constitute a serious drawback to this work.

The course of study involves the dressing of dolls and articles of clothing for children as well as decorative and art craft projects. Textile study, cost estimating, etc., is included in the course. There is but little relation between the work in sewing and design.

PART 2. HIGH SCHOOL COURSES

Shop Woodwork—Boys. The shop courses in wood are open, upon election, to boys of any High School class. Two 80 minute periods, the equivalent of one full half day, is devoted to this work, which is taught by a special teacher. The room is equipped with woodworking benches, bench and general tools and there is a power platform saw in an adjoining room of the basement. Lack of adequate room, light, tools and equipment greatly handicaps this work. There are at present four woodworking classes with a total enrollment of about 19 boys. Boys electing woodworking may also elect mechanical drawing, but are not compelled to do so. Each class is open to boys of any High School year, and may thus contain freshmen, juniors, sophomores and seniors, making the problem of instruction very difficult.

The course of study is of the traditional order. Advanced boys are allowed to elect projects. As indicated above, while the work itself is commendable, a better adaptation to the needs of Hammond is obviously required

Mechanical Drawing. The work in mechanical drawing in the High School is elective, being open to all boys in any of the four High School years. Two 80 minute periods weekly are devoted to the work. It is taught in the mechanical drawing room by the mechanical drawing teacher who gives all his time to this work. The work is handicapped, first, by lack of adequate floor space and light; and second, because any class may contain freshmen, juniors or seniors. The first semester's work includes exercises involving the use of the instruments, geometric construction, free hand lettering, projection, working drawings, tracings, etc. In the second semester advanced projection occupies the greater part of the time. Subsequent work is related to machine design or architectural draughting, in keeping with the pupils' interests. All of the work observed was of a very high order of excellence, and especially commendable in view of the serious handicap of lack of equipment and grading of pupils. The earlier introduction of real problems would strengthen the course.

Printing. Work in printing was introduced about the middle of January, 1915. A first class equipment, including platen presses, over cutter, type, cases, etc., has been installed. The Superintendent is to be specially commended in selecting a thoroughly trained printer, and teacher, for this work. The printing course is open to all High School boys, regardless of grade, and five eighty-minute periods per week are devoted to the work. This department offers great promise for future development.

Drawing and Design. Drawing in the High School is taught in the studio room by the drawing supervisor. The work is elective, and is open to both boys and girls of any High School year. Two forty-minute periods weekly are allotted to this work. There are at present three High School classes with a total enrollment of about twenty-five pupils. Lack of adequate room, light and exhibit space and equipment seriously handicap this work in the High School. Lack of graduation of pupils in classes, also, occasions many difficulties from the standpoint of instruction. The course includes color study, design as applied to costumes, posters, advertising, etc. Girls electing sewing and boys electing wood shop work may also elect drawing, but are not required to do so. There is no relation between the drawing and the wood shop and printing courses, and but little relation between drawing and sewing. With the introduction of printing, the need for

design, as applied to this craft, is obvious and really vitally necessary.

Cooking. Cooking is elective in the High School, being open to all girls in any of the High School grades; 160 minutes per week is allotted to this subject. At present there are two classes enrolling about thirty pupils. The course comprises the study of simple chemical principles as related to food and the preparation of foods. As each class is open to girls from any High School class the lack of proper grading is a serious handicap. The absence of provision for a course in food chemistry constitutes a serious drawback.

Sewing. Sewing work is elective in the High School, being open to any girls of any High School class, and 160 minutes per week is allotted to this work, which is taught by a special sewing teacher. While there is a sewing room, it is inadequate, and lack of floor space, light, tables, cupboards, etc., seriously hinders the work. The beginning course includes making simple garments, such as dresses, shirt waists and also textile studies. The more advanced course includes garment making, with attention to costume design, cost estimating and textile study. While there is some correlation between the High School work in sewing and design, an extension of this relation would prove beneficial.

Household Physics. A one-year elective course in Household Physics is open to Junior and Senior High School girls. This work is taught by the Physics teacher in the physics room, and four forty-minute periods weekly are allotted to this subject. About sixteen girls have elected the course. The course includes the practical study of heating and ventilating and plumbing systems, gas and electric meters, motors, electric irons and sewing and washing machines. This work is of great practical value and it is regretted that so few girls can receive the benefit of this instruction.

PART 3. EVENING SCHOOL COURSES

Courses and Enrollment. The courses given in the evening school of Hammond may be grouped under four departmental heads; general, including English, arithmetic and spelling; household arts, including sewing, cooking and millinery; commercial, including penmanship, business English, commercial arithmetic, bookkeeping, typewriting and stenography; and industrial, including woodworking, shop mathematics, mechanical drawing and electrical engineering. In November there were enrolled in all of these courses 803 students, the average attendance being 528 for that month, and in January the enrollment was 784 and the average attendance 483. Enrollment by departments is indicated in Table 38.*

The first outstanding fact is the large number of students enrolled in the evening school, and the second is the persistence in enrollment and attendance. This indicates, in a general way, that the school as organized is actually meeting real needs, for, as attendance is optional, students would soon drop out if the work did not prove profitable.

Term and Time Schedules. The night school is in session from 7:30 to 9:30 Monday, Tuesday, Wednesday and Thursday evenings for the seven months following the first Monday in October, exclusive of the Christmas vacation and occasional holidays. The term is divided into two semesters. Each class meets for one hour (sixty minutes) two evenings per week. A student may, therefore, elect one course, involving attendance from either 7:30 to 8:30 or 8:30 to 9:30 two nights per week, or two courses, three courses or even four courses, in the latter case requiring attendance for two hours four nights per week.

* There are certain omissions from this table. The sum of the number of day wage earners, those not employed for wages, those attending day public schools, and those attending day parochial schools should equal the total enrollment. In no case, however, do these sums agree as the original data were incomplete. In like manner and for the same reason, the sums of those listed in the various age groups do not always comprise the total enrollment.

Facts concerning enrollment would have been more useful and accurate if the number of students attending each course for from one to five days, six to ten days, eleven to twenty days, etc., had been recorded rather than the average attendance.

TABLE 38
Enrollment, Attendance, Day Employment and Ages of Males and Females
Pursuing Evening School Courses

Courses	Enrollment						Average Attendance					
	November			January			November			January		
	Male	Fe- male	Total	Male	Fe- male	Total	Male	Fe- male	Total	Male	Fe- male	Total
	Male	Fe- male	Total	Male	Fe- male	Total	Male	Fe- male	Total	Male	Fe- male	Total
General.....	144	42	186	161	37	198	95	29	124	90	21	111
Household Arts.....	214	214	428	154	154	308	111	111	222	89	89	178
Commercial.....	156	108	264	160	125	285	95	90	185	93	101	194
Industrial.....	138	1	139	147	....	147	107	1	108	90	....	90
Total.....	438	365	803	468	316	784	297	231	528	273	211	484
Day Wage Workers						Not Employed for Wages*						
General.....	102	21	113	94	15	109	24	15	39	34	13	47
Household Arts.....	88	88	176	49	49	98	97	97	194	76	76	152
Commercial.....	106	48	154	115	78	193	17	36	53	24	36	60
Industrial.....	85	1	86	50	....	50	21	....	21	21	....	21
Total.....	293	158	451	259	142	401	62	148	210	79	125	204
Attending Day Public School						Attending Day Parochial School						
General.....	8	....	8	11	2	13	3	6	9	12	6	18
Household Arts.....	7	7	14	7	7	14	20	20	40	14	14	28
Commercial.....	13	7	20	13	10	23	9	8	17	12	7	19
Industrial.....	19	1	20	26	....	26	9	....	9	16	....	16
Total.....	40	15	55	50	19	69	21	34	55	40	27	67
Between 10 and 16 Years of Age						Between 17 and 20 Years of Age						
General.....	33	24	57	37	24	61	26	6	32	34	6	40
Household Arts.....	33	33	66	28	28	56	69	69	138	58	58	116
Commercial.....	43	44	87	45	50	95	53	37	90	60	47	107
Industrial.....	29	....	29	39	....	39	46	1	47	18	....	18
Total.....	105	101	206	121	102	223	125	113	238	112	111	223
Over 21 Years of Age						Living near Steel Car Plant						
General.....	84	11	95	66	6	72	25	2	27	15	2	17
Household Arts.....	90	90	180	53	53	106	....	....	....	2	2	4
Commercial.....	50	27	77	59	28	87	20	10	30	32	15	47
Industrial.....	74	....	74	28	....	28	14	....	14	25	....	25
Total.....	208	128	336	153	87	240	59	12	71	72	19	91

*Includes those out of employment.

Who Attends Night School? In November there were 438 males enrolled in the evening school, being classified according to their day employment as follows:

295 or 67.35% were employed as wage earners.
62* or 14.15% were not employed at all.
30 or 6.84% were enrolled in the Hammond Public Day Schools.
21 or 4.79% were enrolled in the Hammond Parochial Day Schools.
30 or 6.84%—employment not known.

The age groups of the 438 men in the night school in November were as follows:

105 or 23.97% were under 16 years of age.
125 or 28.54% were from 17 to 20 years of age.
208 or 47.49% were over 21 years of age.

In November, 365 females were enrolled in the night schools and their day employment was as follows:

158 or 43.28% were wage earners.
149 or 40.82% were not employed as wage earners.
15 or 4.10% were enrolled in the Hammond Day schools.
34 or 9.31% were enrolled in the Hammond Parochial schools.
9 or 2.46% employment not known.

The age groups of females enrolled in November are as follows:

101 or 27.67% were under 16 years of age.
113 or 30.95% were between 17 and 20 years of age.
128 or 35.06% were over 21 years of age.
23 or 6.30% were of unknown age.

Facts of Enrollment. As the men and women attending night school are enrolled in courses widely different in character, comparisons of the total school enrollment and attendance averages showing dropping off from November to January are of little significance, as different causes and factors are involved and operate within the course and groups of courses. The facts of dropping out by sex, age and day employment, are, therefore, presented under the sections describing the groups of courses.

*This includes men out of work.

1—GENERAL COURSES

Attendance and Enrollment. The summarized facts of enrollment, attendance, day employment, age and sex of students enrolled in each of the general courses are contained in Table 39.

TABLE 39

Enrollment, Attendance, Day Employment and Ages of Males and Females Pursuing General Night School Courses

Courses and Subjects	Enrollment						Average Attendance					
	November			January			November			January		
	Male	Fe- male	Total	Male	Fe- male	Total	Male	Fe- male	Total	Male	Fe- male	Total
Englishforforeigners	70	11	81	86	6	92	51	7	58	56	5	61
Arithmetic.....	44	3	47	37	2	39	19	...	19	15	2	17
Spelling.....	30	28	58	38	29	67	25	22	47	19	14	33
Total.....	144	42	186	161	37	198	95	29	124	90	21	111
Wage Workers						Not Working*						
Englishforforeigners	60	11	71	57	3	60	10	1	11	19	2	21
Arithmetic.....	26	2	28	18	...	18	13	2	15	10	2	12
Spelling.....	16	8	24	19	12	31	1	12	13	5	9	14
Total.....	102	21	123	94	15	109	24	15	39	34	13	47
Attending Day Public Schools						Attending Day Parochial Schools						
Englishforforeigners	...	...	...	...	...	...	...	...	...	...	...	...
Arithmetic.....	...	...	...	3	...	3	...	...	...	6	...	6
Spelling.....	8	...	8	8	2	10	3	6	9	6	6	12
Total.....	8	...	8	11	2	13	3	6	9	12	6	18
Between 10 and 16 Years of Age						Between 17 and 20 Years of Age						
Englishforforeigners	2	...	2	3	...	3	15	4	19	17	2	19
Arithmetic.....	16	3	19	16	3	19	10	...	10	11	...	11
Spelling.....	15	21	36	18	21	39	1	2	3	6	3	9
Total.....	33	24	57	37	24	61	26	6	32	34	5	39
Over 21 Years of Age						Living Near Standard Car Plant						
Englishfortoreigners	53	7	60	42	1	43	13	...	13	6	...	6
Arithmetic.....	19	1	20	10	...	10	8	...	8	4	...	4
Spelling.....	12	3	15	14	5	19	4	2	6	5	2	7
Total.....	84	11	95	66	6	72	25	2	27	15	2	17

*Includes those out of work.

Gain and Loss in Enrollment November to January

COURSES	Males		Females	
	Gain	Loss	Gain	Loss
English.....	16	..	5	..
Arithmetic.....	..	7	..	1
Spelling.....	8	..	1	..
All courses—net gain and loss.....	17	..	5	..

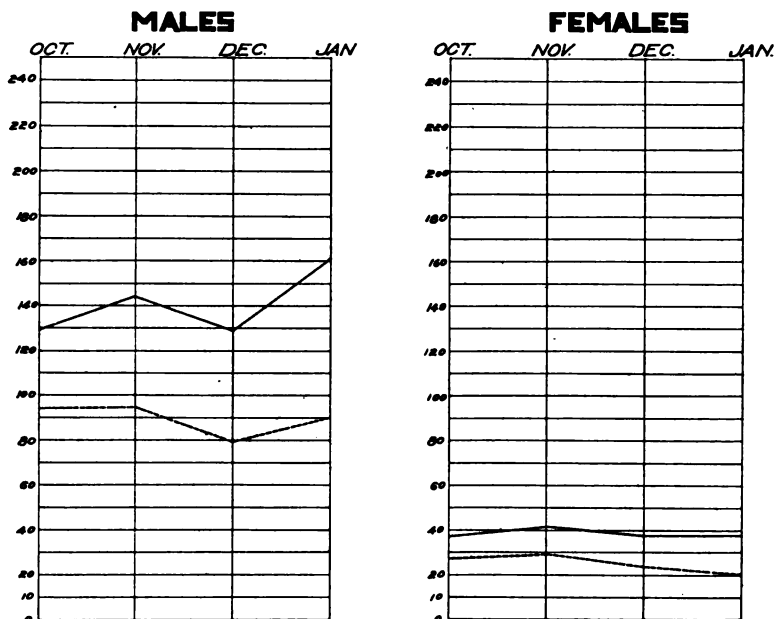
The Percentage of Average Attendance of Enrolled Males and Females

COURSES	November		January	
	Males	Females	Males	Females
English.....	73	64	65	82
Arithmetic.....	44	..	40	100
Spelling.....	83	79	50	50
All courses.....	66	66	56	57

The number enrolled in these courses and the average attendance for October, November, December and January are indicated in Chart 7.

English for Foreigners. Considering the number of foreigners residing in Hammond, it is significant to note the provision for teaching English in the night school and the number, sex and age of pupils enrolled in the classes. It will be noted from Table 39 that the demand for English was greater than for arithmetic or spelling; that the majority of English students were men; that the number enrolled increased materially from November to January; and that the average attendance of the men was relatively high, but of the women much lower. Also, that of both men and women; practically all were employed by day as wage earners; and that over 65 per cent. of the students were adults over 21 years of age. Only thirteen men and six women from the vicinity of the Standard Steel Car Plant were enrolled in the English classes.

CHART 7—GENERAL
Enrollment and Attendance in General Night School Courses



In two of the classes designed especially for foreigners, the great majority of the men and women enrolled were laborers, but in the two other English classes, there were thirty-six skilled mechanics, one clerk, two drivers, two musicians, two waiters and two housemaids.

The English courses included spelling, reading, sentence building and writing.

Arithmetic. About one-half as many students were enrolled in the arithmetic as in the English classes, and of the forty-seven enrolled in November, only three were women. The enrollment for January was less than in November, and in neither November nor January, was the average attendance over 50 per cent. of the enrollment. Of the males enrolled in November all were

wage earners. In January, three attending day public schools and six day parochial schools, entered the class and many adults dropped out.

In the arithmetic classes the majority of both males and females were under 21 years of age, this being in marked contrast with the ages of those attending English classes. It is significant to note that the sixteen males and three females between 10 and 16 years of age enrolled in November, were also attending in January; that there was an increase from ten to eleven of young men between 17 and 20 years of age; but, of the nineteen men and one woman over 21 years, enrolled in November, but ten men and no women were in attendance in January. But eight men living near the Standard Steel Car plant were enrolled in November and four dropped out before January.

The students enrolled in these classes were employed as follows: Seven clerks, five laborers, fourteen mechanics and one telephone operator. For the mechanics, the course in arithmetic included a thorough drill in common and decimal fractions, and for the commercial students a study of aliquot parts, etc. As there was such a variation in preparation and capacity of the students enrolled, the teaching was largely individual.

Spelling. In November the enrollment in the spelling classes was about equally divided between males and females, but in January, more males entered the class. The average attendance for November was relatively high, but for January, was less than 50 per cent. of the enrollment. Only sixteen of the males were wage earners; eight attended public school and three parochial schools. One-half of the males, and two-thirds of the females, enrolled in November, were under 16 years of age. But four men and two women living near the Standard Steel Car plant were in these classes. The majority of those in the spelling classes were employed by day in some clerical pursuit.

§ 2. Household Arts Courses

Attendance and Enrollment. The summarized facts of enrollment, attendance, day employment, age and sex of students enrolled in each of the household arts courses are contained in Table 40.

TABLE 40

Enrollment, Attendance, Day Employment and Ages of Males and Females Pursuing Evening Courses in Household Arts

Courses and Subjects	Enrollment						Average Attendance					
	November			January			November			January		
	Male	Fe- male	Total	Male	Fe- male	Total	Male	Fe- male	Total	Male	Fe- male	Total
Sewing.....	56	56	.....	38	38	.....	38	38	.....	24	24
Advanced Sewing...	67	67	.....	54	54	.....	33	33	.....	30	30
Cooking.....	43	43	.....	22	22	.....	30	30	.....	17	17
Millinery.....	48	48	.....	40	40	.....	10	10	.....	18	18
Total.....	214	214	.....	154	154	.....	111	111	.....	89	89
Day Wage Workers												
Sewing.....	31	31	.....	12	12	.....	21	21	.....	7	7
Advanced Sewing...	23	23	.....	15	15	.....	39	39	.....	35	35
Cooking.....	27	27	.....	15	15	.....	10	10	.....	6	6
Millinery.....	7	7	.....	7	7	.....	27	27	.....	28	28
Total.....	88	88	.....	49	49	.....	97	97	.....	76	76
Attending Day Public School												
Sewing.....	4	4	.....	4	4	.....	6	6	.....	6	6
Advanced Sewing...	1	1	.....	1	1	.....	4	4	.....	3	3
Cooking.....	1	1	.....	1	1	.....	5	5	.....	.....	.....
Millinery.....	1	1	.....	1	1	.....	5	5	.....	5	5
Total.....	7	7	.....	7	7	.....	20	20	.....	14	14
Between 10 and 16 Years of Age												
Sewing.....	11	11	.....	10	10	.....	22	22	.....	20	20
Advanced Sewing...	7	7	.....	6	6	.....	24	24	.....	21	21
Cooking.....	6	6	.....	.....	.....	.....	20	20	.....	9	9
Millinery.....	9	9	.....	10	10	.....	3	3	.....	8	8
Total.....	33	33	.....	26	26	.....	69	69	.....	58	58
Over 21 Years of Age												
Sewing.....	21	21	.....	8	8	.....	.....	.....	.....	.....	.....
Advanced Sewing...	38	38	.....	27	27	.....	.....	.....	.....	.....	.....
Cooking.....	18	18	.....	13	13	.....	.....	.....	.....	.....	.....
Millinery.....	13	13	.....	15	15	.....	.....	.....	.....	2	2
Total.....	90	90	.....	63	63	.....	.....	.....	.....	2	2
Living near Standard Steel Plant												
Sewing.....
Advanced Sewing...
Cooking.....
Millinery.....
Total.....

It will be noted that the total enrollment in these courses dropped from 214 in November to 154 in January, and also that in November about two-thirds of all women enrolled in the night school were taking courses in household arts.

The gain and loss in enrollment of women in each household arts course from November to January, and the percentage of average attendance of enrollment are as follows:

Gain and Loss in Enrollment, November and January

COURSES	Males		Females	
	Gain	Loss	Gain	Loss
Sewing.....	18
Advanced sewing.....	13
Cooking.....	21
Millinery.....	8
All courses net gain and loss.....	60

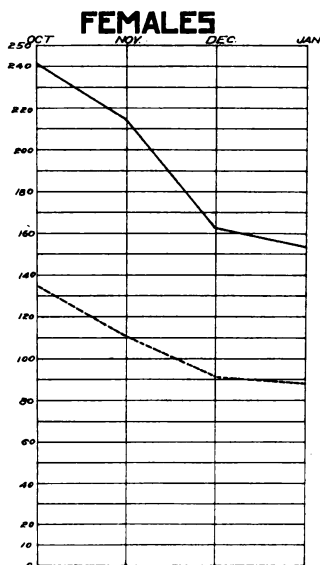
**Percentage Average Attendance of Enrolled Students
November and January**

COURSES	November		January	
	Males	Females	Males	Females
Sewing.....	..	68	..	62
Advanced sewing.....	..	50	..	55
Cooking.....	..	70	..	77
Millinery.....	..	20	..	45
All courses.....	..	52	..	57

The number enrolled in these courses and the average attendance for October, November, December and January are indicated in Chart 8.

CHART 8

Enrollment and Attendance in Household Arts Courses



Sewing. Of the fifty-six women enrolled in the sewing classes, thirty-one were day wage earners, twenty-one were not employed for wages, four were attending day public schools and six day parochial schools. There were but eleven girls under 16 years of age in these classes, and twenty-two between 17 and 20 years, and twenty-one over 21 years of age. There was a marked drop in enrollment between November and January, and the majority of those dropping out were over 21 years of age. The average attendance was fairly high for both November and January. No women living near the Standard Steel Car plant were enrolled in sewing classes. Ten of the women enrolled were housewives or women remaining at home, six were house workers, one a telephone operator, nine were store or office clerks and fourteen were industrial workers.

The course included elementary sewing and the making of underwear, kimonos, Christmas novelties, etc. The specific needs of individual students determined the work pursued.

Advanced Sewing. Sixty-seven women were enrolled in advanced sewing classes in November, but the number dropped to fifty-four in January. The average attendance for November and January was but 50 per cent. of the enrollment. The greater percentage of those enrolled in these courses were housewives, there being, however, in November, twenty-three wage earners, one attending day public school and four attending day parochial schools. Only seven girls under 16 years were enrolled, while there were twenty-four between 17 and 20, and thirty-eight over 21 years of age. The greatest drop in enrollment occurred among those over 21 years of age. No women from the vicinity of the Standard Steel Car plant were pursuing advanced sewing courses.

Thirty-two of the women enrolled were housewives, four were clerks, two stenographers and thirteen industrial workers. The course included making fancy waists, skirts, business frocks, afternoon dresses, school dresses and children's clothes, in keeping with the needs of individual students.

Cooking. Enrollment in the cooking classes dropped from forty-three in November to twenty-two in January, and the average attendance for both November and January was about 70 per cent. of the enrollment. Twenty-seven of the women enrolled in November were wage earners, ten housewives, one attended day public school and five attended day parochial schools. The greatest drop in enrollment occurred among wage earners between 17 and 20 years of age. There were but six girls under 16 years of age pursuing cooking courses, twenty between 17 and 20 years of age, and eighteen women over 21 years of age.

The women enrolled in cooking courses were employed during the day as follows: fifteen housewives, three teachers, eight store and office employees, two domestics and sixteen industrial workers. The course included fruit canning, making jelly and pickles, studying and cooking of starch foods and green vegetables, study of doughs and batters, making muffins, biscuits and griddle cakes.

Millinery. While the enrollment in millinery classes dropped from forty-eight in November to forty in January, the attendance in November was but 20 per cent. of the enrollment and in January but 45 per cent. of the enrollment. The great majority



of women enrolled in millinery classes were housewives, although there were seven wage earners, one attending day public school and five attending day parochial schools. The ages of the majority of the women in these courses are not specified.

The course was so organized as to provide for meeting the individual needs of students. All work, however, was of a practical nature and included making of flowers, remodeling hats, making buckram frames and trimming hats.

§ 3. Commercial Courses

Attendance and Enrollment. The summarized facts of enrollment, attendance, day employment, age, and sex of students in each commercial course are indicated in Table 41.



TABLE 41

Enrollment, Attendance, Day Employment and Age of Males and Females Pursuing Evening Commercial Courses

Courses	Enrollment						Average Attendance					
	November			January			November			January		
	Male	Fe- male	Total	Male	Fe- male	Total	Male	Fe- male	Total	Male	Fe- male	Total
Penmanship.....	20	10	30	23	9	32	16	8	24	17	5	22
Business English...	26	10	36	26	8	34	18	6	24	16	6	22
Com. Arithmetic....	59	3	62	51	3	54	20	1	21	18	2	20
Bookkeeping.....	22	8	30	18	8	26	19	7	26	15	6	21
Typewriting.....	18	42	60	32	65	97	14	37	51	22	53	75
Stenography.....	11	35	46	10	32	42	8	31	39	5	29	34
Total.....	156	108	264	160	125	285	95	90	185	93	101	194
Day Wage Workers						Not Employed for Wages						
Penmanship.....	18	6	24	21	6	27	....	3	3	....	1	1
Business English...	15	3	18	18	4	22	4	2	6	4	2	6
Com. Arithmetic....	33	1	34	28	1	29	9	2	11	11	2	13
Bookkeeping.....	20	5	25	18	5	23	....	2	2	....	3	3
Typewriting.....	12	24	36	22	39	61	2	10	12	5	13	18
Stenography.....	8	9	17	8	24	32	2	17	19	4	15	19
Total.....	106	48	154	115	79	194	17	36	53	24	36	60
Attending Day Public School						Attending Day Parochial School						
Penmanship.....	2	1	3	2	3	5	....	....	....	....	....	....
Business English...	4	1	5	2	....	2	3	4	7	2	2	4
Com. Arithmetic....	2	....	2	2	....	2	5	....	5	10	....	10
Bookkeeping.....	2	1	3	2	1	3	....	....	....	....	....	....
Typewriting.....	3	4	7	5	7	12	1	4	5	....	5	5
Stenography.....	....	....	....	....	....	....	....	....	....	....	....	....
Total.....	13	7	20	13	11	24	9	8	17	12	7	19
Between 10 and 16 Years of Age						Between 17 and 20 Years of Age						
Penmanship.....	....	....	....	....	....	....	14	6	20	16	5	21
Business English...	6	5	11	4	2	6	1	....	1	1	....	1
Com. Arithmetic....	20	2	22	22	2	24	18	1	19	14	1	15
Bookkeeping.....	4	1	5	3	1	4	10	2	12	9	2	11
Typewriting.....	10	19	29	11	30	41	5	16	21	15	27	42
Stenography.....	3	17	20	5	15	20	5	12	17	5	12	17
Total.....	43	44	87	45	50	95	53	37	90	60	47	107
Over 21 Years of Age						Living near Standard Steel Plant						
Penmanship.....	6	4	10	7	4	11	....	....	....	3	....	3
Business English...	19	5	24	21	6	27	8	2	10	11	1	12
Com. Arithmetic....	14	....	14	15	....	15	6	....	6	7	....	7
Bookkeeping.....	4	6	10	6	5	11	....	....	....	....	....	....
Typewriting.....	3	7	10	6	8	14	6	8	14	11	14	25
Stenography.....	4	5	9	4	5	9	....	....	....	....	....	....
Total.....	50	27	77	59	28	87	20	10	30	32	15	47

It will be noted that in November there were 156 males and 108 females enrolled in all courses, and that in January there were 160 males and 125 females enrolled. About one-third of the males and one-third of the females of the entire school were enrolled in these courses.

The gain and loss in enrollment of males and females in each commercial course for November and January and the percentage average attendance of enrollment are as follows:

Gain and Loss in Enrollment, November and January

COURSES	Males		Females	
	Gain	Loss	Gain	Loss
Penmanship.....	3	..	..	1
Business English.....	..	..	..	2
Com. Arithmetic.....	..	8	..	..
Bookkeeping.....	..	4	..	..
Typewriting.....	14	..	23	..
Stenography.....	..	1	..	3
All courses—net gain and loss.....	4	..	17	..

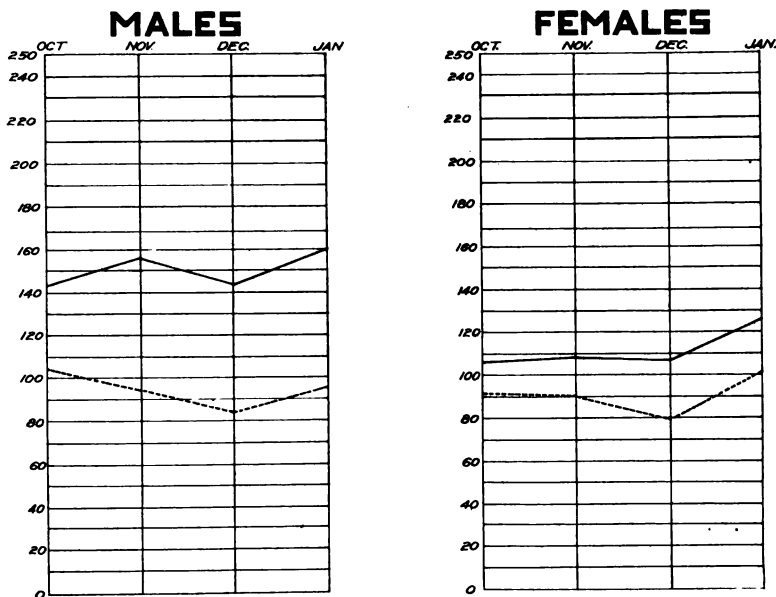
**Percentage Average Attendance of Enrolled Students
November and January**

COURSES	November		January	
	Males	Females	Males	Females
Penmanship.....	80	80	70	55
Business English.....	69	60	61	75
Com. Arithmetic.....	34	34	35	56
Bookkeeping.....	86	88	83	75
Typewriting.....	86	89	69	80
Stenography.....	73	88	50	90
All courses.....	61	83	58	80

The facts of enrollment and average attendance for October, November, December and January are pictured in Chart 9.

CHART 9

Enrollment and Attendance in Commercial Courses



Penmanship. There were over twice as many males as females enrolled in penmanship classes, and the average attendance for both sexes for November was relatively very high, but considerably lower in January. Practically all of the males and one-half of the females in these classes were wage earners. There were, however, in November, two boys and one girl enrolled who were attending the day public schools. The greater percentage of the students, both male and female, were between the ages of 16 and 20 years, and but three males living near the Standard Steel Car plant were enrolled. One penmanship class was discontinued the first of February.

Business English. Almost three times as many males as females were enrolled in business English classes for both November and January. The percentage average attendance was lower in these classes than in penmanship. While the majority of the males enrolled were wage earners, the majority of the females were not, there being of the latter, two not working, one attend-

ing day public school and four attending day parochial schools. About two-thirds of the males enrolled were over 21 years of age, while one-half of the females were between 10 and 16, the other half being over 21 years. In January eleven men and two women, living near the Standard Steel plant, were registered in these courses.

The course in business English included business letter writing: form of letters, how placed on paper, appropriate salutations, various types of letters; applications, ordering goods, inquiry, etc. All work involved the application of the rules of grammar and punctuation. The day employment and the number of wage earners in these classes are not known.

Commercial Arithmetic. The great majority of those enrolled in commercial arithmetic courses in November and January were males, and while more were enrolled in these classes than in other commercial courses during both November and January, the average attendance was low, being only about 30 per cent. of the enrollment. The majority of the men were wage earners. In age, the students were about evenly divided among those 10 to 16 years; 17 to 20 years and over 20 years. Enrolled in these courses, were twenty-one mechanics, eight office clerks, three store clerks and one stenographer. In passing, it should be recalled that in the general arithmetic course, many mechanics and office employees were enrolled. A reclassification of students on the basis of day employment would be the means of achieving better results.

For department store, office clerks and stenographers, the course included short methods and speed drills; and for commercial students, short methods and discounts; and for mechanics, fractions and decimals.

Bookkeeping. There were twenty-two males and eight females registered in bookkeeping classes in November and four males dropped out before January. The percentage average attendance of both males and females in these classes was very high. Practically all enrolled were wage earners. Four males and one female were under 16 years of age; ten males and two females between 17 and 20; and four males and six females were over 21 years of age. The day employment of the majority of wage earners in these courses is not known.

The course included bookkeeping for a grocery business run by a single proprietor and involved opening of books, journaliz-

ing, posting, use of cash book, purchase book, sales book, etc.; business papers, e. g., drafts, checks, notes, invoices, bills, etc.

Typewriting. There were eighteen males and forty-two females enrolled in November in typewriting classes. In January, however, the number of males increased to thirty-two and the females to sixty-five, and a new class was organized to meet this increase. The percentage of average attendance of both males and females was relatively high. While the majority of the males enrolling in November were wage earners, there were two not working, three attending public day schools and one attending day parochial schools. Of the females, twenty-four were wage earners, ten were not working, four were attending day public schools and four day parochial schools. There were only three men and seven women in these classes over 21 years of age, while there were ten boys and nineteen girls under 16 years of age and five young men and sixteen young women between 17 and 20 years of age.

The employment of the wage earners enrolled in the typewriting course was as follows: twenty-seven in stores and offices, nine in manufacturing establishments, two teachers, two stenographers, two servants, one seamstress and one milliner.

The touch method in typewriting is taught, and the course includes mastering of the keyboard by word and sentence drills, daily finger drills, daily dictation of words and sentences and paragraph writing, number drills and simple letter writing.

Stenography. There were three times as many females as males enrolled in the classes in stenography, and the average attendance of females for both November and January was high. Of these enrolled in November, twelve males and twenty-four females were wage earners, two males and ten females were not working, and of the remainder, the day employment is not recorded. The great majority of the males and females were under 20 years of age.

Most of the wage earners enrolled were employed by day in some clerical pursuit. The Gregg system of shorthand is taught.

§ 4. Industrial Courses

Attendance and Enrollment. The summarized facts of enrollment, attendance, day employment, age and sex of students enrolled in each of the Industrial Courses are contained in Table 42.

TABLE 42

Enrollment, Attendance, Day Employment and Ages of Males and Females Pursuing Evening Industrial Courses

Courses	Enrollment						Average Attendance					
	November			January			November			January		
	Male	Fe-male	Total	Male	Fe-male	Total	Male	Fe-male	Total	Male	Fe-male	Total
Woodworking.....	40	....	40	51	....	51	34	....	34	47	....	47
Shop Mathematics..	30	....	30	30	....	30	20	....	20	10	....	10
Mech. Drawing.....	39	1	40	36	....	36	35	1	36	29	....	29
Elect. Eng.....	29	....	29	30	....	30	18	....	18	4	....	4
Total.....	138	1	139	147	....	147	107	1	108	90	....	90
Day Wage Workers						Not Employed for Wages						
Woodworking.....	13	....	13	5	....	6	4	....	4	11	....	11
Shop Mathematics..	20	....	20	....	....	....	8	....	8	....	....	....
Mech. Drawing.....	32	....	32	22	....	22	5	....	5	6	....	6
Elect. Eng.....	20	....	20	22	....	22	4	....	4	4	....	4
Total.....	85	....	85	50	....	50	21	....	21	21	....	21
Attending Day Public School						Attending Day Parochial School						
Woodworking.....	14	....	14	16	....	16	9	....	9	16	....	16
Shop Mathematics..	2	....	2	....	....	....	....	....	....	....	....	....
Mech. Drawing.....	1	1	2	8	....	8	....	....	....	....	....	....
Elect. Eng.....	2	....	2	2	....	2	....	....	....	....	....	....
Total.....	19	1	20	26	....	26	9	....	9	16	....	16
Between 10 and 16 Years of Age						Between 17 and 20 Years of Age						
Woodworking.....	24	....	24	31	....	31	6	....	6	6	....	6
Shop Mathematics..	....	....	....	....	....	....	4	....	4	....	....	....
Mech. Drawing.....	3	....	3	8	....	8	31	1	32	12	....	12
Elect. Eng.....	2	....	2	....	....	....	5	....	5	....	....	....
Total.....	29	....	29	39	....	39	46	1	47	18	....	18
Over 21 Years of Age						Living Near Standard Steel Plant						
Woodworking.....	10	....	10	12	....	12	9	....	9	9	....	9
Shop Mathematics..	26	....	26	....	....	....	....	....	....	5	....	5
Mech. Drawing.....	15	....	15	16	....	16	5	....	5	5	....	5
Elect. Eng.....	23	....	23	....	....	....	....	....	....	6	....	6
Total.....	74	....	74	28	....	28	14	....	14	25	....	25

It will be noted that the total enrollment in these courses increased from 138 in November to 147 in January, and that about one-third of all males enrolled in the night school were registered in industrial courses.

The gain and loss in enrollment of males in each industrial course from November to January, and the percentage average attendance of enrollment are as follows:

Gain and Loss in Enrollment, November and January

COURSES	Males		Females	
	Gain	Loss	Gain	Loss
Woodworking.....	11	..	..	..
Shop Mathematics.....	..	..	..	..
Mechanical Drawing.....	11	3	1	..
Electrical Engineering.....	1	..	..	..
All courses—net gain and loss.....	9	..	1	..

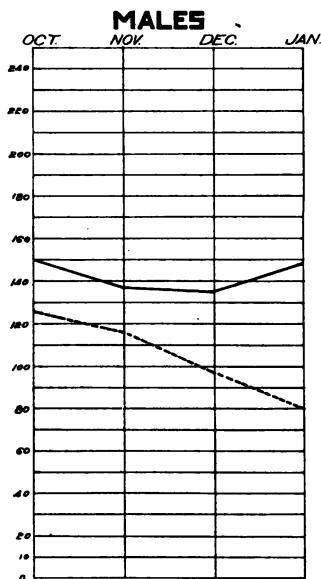
**Percentage Average Attendance of Enrolled Students,
November and January**

COURSES	November		January	
	Males	Females	Males	Females
Woodworking.....	85	..	92	..
Shop Mathematics.....	66	..	33	..
Mechanical Drawing.....	90	..	83	..
Electrical Engineering.....	62	..	13	..
All courses.....	77	..	61	..

The facts of enrollment and average attendance for October, November, December and January are pictured in Chart 10.

CHART 10

Enrollment and Attendance in Industrial Courses



Woodworking. Enrollment in the courses in woodworking increased considerably from November to January, and the percentage of attendance for both months was relatively very high. There were but thirteen wage earners in these classes, and, of the remainder, four were not employed for wages, fourteen were attending day public schools and nine day parochial schools. Although the great majority of those enrolled were boys under 16 years of age, there were four young men between 17 and 20, and ten men over 21 years of age. Of the wage earners pursuing woodworking courses, twelve were mechanics and one a grocery clerk.

The beginning course included bench work in wood, and involved method of squaring stock to dimension, the making of a game board, sleeve board, box, camp stool, etc. The advanced course included cabinet construction, projects being adapted to the individual interests of students.

Shop Mathematics. Enrollment in the shop mathematics courses remained constant from November to January, but the average attendance for November was but 60 per cent. and for January, 30 per cent. of the enrollment. Practically all men enrolled were wage earners over 16 years of age, and the great majority were over 21 years of age.

Eight of the wage earners were mechanics and four were clerks. The course included consideration of decimals, rates, proportion, square root, cube root, algebra and the solution of formulas and the principles of trigonometry and solution of triangles.

Mechanical Drawing. The enrollment in mechanical drawing classes was practically constant from November to January, and the percentage of average attendance was very high for both months. Practically all enrolled were wage earners, and twenty-nine of the wage earners were mechanics.

The course of instruction was so organized that each student pursued the line of work in keeping with his needs.

Electrical Engineering. While the enrollment in the course in electrical engineering remained constant for November and January, the average attendance for November was 60 per cent. of the enrollment and for January 13 per cent. of the enrollment. Nearly all enrolled in the course were wage earners over 21 years of age. Thirteen of the wage earners were electricians or helpers, and five were clerks. The class was discontinued February first.

The course included magnetism, Ohms law, divided circuits, motor and dynamo principles, storage, watts, electric light, etc.

CHAPTER VII.

SUGGESTED PROVISIONS FOR ELEMENTARY INDUSTRIAL, PREVOCATIONAL AND VOCATIONAL EDUCATION

The General Situation. The schools of Hammond are called upon to adapt themselves to a situation which has become increasingly complex during the last decade. This period of time has marked a rapid growth in the city's population; an increase characterized by the large number of foreign born, the great majority being adults; by the existence of illiteracy among a considerable number of the foreign born; and the predominant number of males of both foreign and native-born residents. The presence of large manufacturing establishments requiring a considerable number of unskilled and semiskilled workers has resulted in attracting to Hammond many families with varying standards of living, some of which are relatively low; and enforced idleness of wage earners, resulting from seasonableness in industry and recurring periods of industrial depression, bring the accompanying problem of periodic poverty and distress. The presence of a large number of saloons in certain districts is another complicating factor.

The children of Hammond are distributed in attendance among the public schools, and eight parochial schools, and over one-third are enrolled in the latter. About two-thirds of the boys and girls leave school at the age of 14, and of this number many complete only the sixth grade. The great majority of boys and girls thus leaving school enter industrial pursuits, and are, therefore, untrained workers in industry, entering an industrial life of which they know relatively little.

The industrial situation is very complicated. The products of the manufacturing establishments are diversified in character. Many of the factories have a number of departments, each requiring workers with varying degrees of skill and of numerous trades. These trades offer diverse possibilities in terms of wages, promotion and length of working season. The industrial situation is further complicated, as, in the main, workers are neither selected nor placed in various departments upon a scientific basis; and, when once placed within a department, the chances are that such work becomes permanent during the period of employment in that particular factory. This, however, is characteristic of most factories throughout the country. Practically in all lines owners and superintendents are coming to believe that workers under 16 years of age are undesirable from every standpoint.

Schools Not Wholly Responsible. It must not be assumed that the schools are to be held entirely responsible for the solution of this complicated problem. All of the social forces of the community must co-operate to this end; the homes, churches, and social agencies. In this connection mention must be made of the work of the Social Settlement, the social workers of the churches, of the Chamber of Commerce, and the United Charities, all of which are working in an efficient manner for the permanent betterment of social conditions. There is great need for co-operation between the parochial and public schools in vocational education, for, if proposed vocational and prevocational courses are open only to those in the public schools, a full third of the school population will not be reached at all.

The General School Problem. In making the necessary provision for vocational education these factors are involved; buildings and equipment; organization of courses; employment of teachers and provision for the continued training of teachers in service; supervision of teachers; gathering facts concerning work of the community; and co-operation between schools and industrial establishments.

General Organization. At present, pupils of the first seven grades, inclusive, attend the various grammar schools, all eighth grades save those of the Franklin, being concentrated in the Central school, in which building the High School is also housed.

The Superintendent of Schools has worked out a new organization which will go into effect with the beginning of the fall term. With this new organization, the elementary period will comprise the first seven grades, thus making it possible for pupils to complete the High School in either four or five years after finishing the seventh grade. The seventh grades will still be retained in the grammar school buildings, and all grades of the secondary school, with the exception of those in the Franklin School, will be centralized in the new High School building soon to be erected.

For purposes of vocational and prevocational education this plan offers great promise. In a city the size of Hammond, shop, studio, and laboratory equipment must be largely centralized, it being impossible to duplicate expensive equipment in many centers. With the organization planned, the equipment to be installed in the new High School will serve the purpose of prevocational, day vocational and night vocational education. This centralization will make possible departmental and specialized teaching for those in the prevocational period, which would otherwise be impossible. With the larger unit, more elastic programs will be possible and individual needs may thus be more fully met. It is thought that the possibilities of departmental specialization, together with opportunities for choice among many types of vocational courses, will attract many pupils who, under the old system, would leave school as soon as the law allows. The general plan of shortening the elementary period is thought to be in keeping with the best recognized educational policies in the United States today.

With the further growth of the City, as the outlying districts are built up, one central building with provision for vocational educational may not be sufficient. When this time comes, it will be a relatively easy matter to establish Junior High Schools, leaving the central building for the Senior High School.

PART 1. ELEMENTARY COURSES

It is obvious, from a study of the section concerning school enrollment, that for many, in fact the majority, of the Hammond boys and girls, the period of school education will have been completed at the age of 14, and, that if the same facts of retardation persist in the future as in the past, the majority of such 14-year-

old boys and girls will enter industrial pursuits not having even a complete elementary school training. With persistent effort and more elastic standards of school achievement and enriched industrial courses, it is to be hoped that the majority of Hammond children may be retained in the schools until the completion of the elementary period, and, that with the proposed vocation courses many will be retained to complete the High School.

The present industrial courses are of the traditional type, well organized and taught, but not entirely adapted to the Hammond situation. It will be noted from the detailed description of the elementary courses that they are based upon either the disciplinary or arts and crafts approach. As such, they are, of course, like the great majority of courses in Indiana and other States. Pupils may successfully pursue and complete such courses and be entirely ignorant of the work of the world and their own latent possibilities for successful participation in it.

Principles Underlying Elementary Courses. Should elementary industrial courses be based upon the findings concerning the industries of Hammond? If we were assured of the fact that the industries carried on to-day in Hammond would be the industries of Hammond of the next few decades, and that these industries offered good possibilities for long and successful wage earning, and that the children now in Hammond were always to live there, there would be some justification for basing part of the elementary industrial work upon a study of these industries.

The chances are, however, that few of the children now residing in Hammond will always live there. Moreover, the basic problem of the elementary school is to develop that general intelligence and knowledge in all fields and aspects of society necessary for home making, citizenship, leisure and right living, as well as productive work.

It is held, therefore, that the principal content of industrial courses must be the same the country over, regardless of place, state, city or town. There must be uniformity in the fundamental content, but variety in methods of approach, emphasis of various units of the course, and in time devoted to sections of the course. This unity is essential to insure the retention of common ideals and purposes, and the variety within the bounds suggested, in making provision for teaching children of various nationalities, various degrees of mental capacity and varying interests.

§ 1. Industrial Art Course. Grades 1 to 5

For the grades one to five, inclusive, industrial art courses should be taught to all children, regardless of sex and future vocation, and should be based upon those elements and aspects of the primal modern industries, about which all should be informed.

Accepting this as a working program, the industrial course must center about the primal industries, which are food, clothing, wood; metal, clay and allied earth products. In order that these courses may have organic relation to the other work of the class room, it is essential that the grade teachers continue, as at present, to teach this work. In organizing these courses, the spiral method will be most satisfactory, which means, for example, that in the third grade the industrial course might include several of the units suggested: perhaps wood, food and clothing.*

Content and Course Organization. The direct industrial contents of the units suggested might be divided into three parts for purposes of analysis: first, that related to the materials involved, their sources, value, methods of obtaining them, methods of transporting, etc.; second, that which is related to manufacturing processes, involving a study of all phases of methods of productions; and third, that which relates to the workers themselves, including a study of the men and women in industry, notable inventors, effect of work upon health, wages, hours of labor, etc. In the grades one to five, the approach to this work must be by means of the project which should be chosen so as to be adapted to the children, and to school room procedure, and must also be representative or capable of illustrating modern industry. The project, however, should not be regarded as the only means of instruction in industry, for ideas may also be conveyed by pictures and talks and visits to factories. It is assumed that through the grades the related design will be an organic part of the course.

Such an industrial course must not stand out alone and disconnected from other units of subject matter, but must at every possible juncture be related to history, arithmetic, literature and nature study, in the same organic manner as now represented in the first three grades of the Hammond schools.

* For a detailed discussion of this point of view, see *Industrial Education*; Bonser and Russell, Dept. of Publications, Teachers College, New York, N. Y.

The Speyer School Course* has been worked out along the lines suggested, and has been found to accomplish the desired ends in developing industrial intelligence. As it is now available in printed form, it is unnecessary to indicate in detail the working out of projects and related content. The course of study of the Horace Mann School† will also be found suggestive.

The industrial work of the first three grades as now organized forms a good basis, in part for the proposed course. Thus, in the field of clay and allied earth products, the course as now organized, includes the making of various projects in clay; animal forms, utensils and tiles, by shaping the moist clay by hand. Without further work, however, but little intelligence may be developed concerning the modern clay industries. Provision must be made for introducing the potters' wheel, the mould, glazing and firing and for a study of the processes of preparing clay for use, including digging, grinding, sifting, mixing with water and pressing; for a study of clay as building material, including the brick, tile, and terra cotta industries; for a study of the pottery industry, including the clays used, potters' secret processes, processes in making china dishes, methods of decoration, glazing and firing; for a study of the pottery industry in the United States, including its extent, general location, main pottery centers, workers, wages and factory conditions. The study should culminate in the fifth grade with the actual selection of dishes and utensils for home use, studying adaptation to home use, design, color and cost.

In like manner, the work in textiles, as now taught in the first and second grades and illustrative of primitive methods, should be carried through the third, fourth and fifth grades, showing the evolution of the manufacturing processes of textiles, floor coverings, draperies, the manufacturing of clothing in all its phases, the relative worth of various fabrics and the testing of materials. In the fields of wood, food and metals the same basic principles are involved and hold true in every respect. In short, aside from studying the primitive and art craft processes in all these fields, provision must be made for the study of modern processes in order to develop industrial intelligence and appreciation.

* The Speyer School Curriculum Department of Publications, Teachers College, New York, N. Y.

† The Curriculum of the Horace Mann School. Ibid.

A Suggested Unit of Instruction. This suggested outline for a study of metals in the fifth grade illustrates the possibilities of the industrial art work when approached with the purpose of developing industrial intelligence and appreciation.*

The project work might be casting a small lead paper weight from soft metal or making a copper hat or stick pin. In making the paper weight, pupils must first construct the casting flask, then the pattern, then mould the pattern and pour the metal, and finally, finish the casting. In making the pin, snips and jeweler's saws should be used for cutting the metal for the head, after which it could be hammered or etched and then soldered to the shaft.

The content related to these metal projects should include the following: How metals are discovered; scientific discovery; and old stories and legends of discovery. Early races possessing a knowledge of metals; Chinese and Japan, Egyptians, Romans, Britons, Saxons, Phoenicians, Hindoos, Chaldeans and Aztecs of North America. Metals known by early races: Iron, tin, copper, lead and zinc.

Rise and spread of the iron and steel industries: How first obtained by primitive peoples; how mined and smelted by primitive peoples; uses of iron by primitive people. The modern iron and steel industries: how iron is obtained, including a description of the ancient and modern mines, tools used, life of a miner, stories of miners, wages of miners, and transporting the ores; kinds of metals obtained from iron ores: cast iron, malleable iron and steel; preparation of ores: smelting, forging, moulding, rolling and milling; fuels used: coke, coal, charcoal and gas; fluxes: silica, borax and quartz sand; the great lines of industry in which iron and steel are used: transportation; bridge building, construction of buildings, including beams, bolts, screws and nails; machinery; agricultural implements; tools, fire arms; toys and household articles. Why steel is adapted to so many lines of manufacturing: strength, lightness, non-yielding qualities and ductility. Location of the great iron and steel works in this country: reasons for the location. •

In like manner tin, zinc, lead and copper should be studied.

* Extracts from an "Outline on Metals," prepared by Miss Rosana Hunter, Supervisor Industrial Arts, Indianapolis, Ind.

Relation of metals to great historical movements and social life and conditions: the stone age, bronze age, iron age; historic mines; invention of mariner's compass and printing press; the influence of the discovery of American mineral wealth; the inventions of stamping mills, steamboat, steam engine, improved fire arms, air pumps, fire engines, agricultural implements and sewing machines; the effect upon transportation; the story of tin; the journeys of the Phoenicians; the making of bronze, etc.; the story of lead and zinc; money of early races and other primitive uses of these metals; the art of plumbing further perfected by these metals; the story of copper; migration of early races to obtain copper; uses of bronzes and brass in works of art and mechanical construction.

Notable inventors and inventions: Thomas Daney, the safety fuse; James Neilsen, hot blast furnace; Sir Humphrey Davy, the Davy lamp; Abraham Darley, the use of coke; Seemens, use of oxide of manganese in production of steel; Cort, process of puddling and welding; Kelly and Bessemer, air blast; Fulton and Symington, the steamboat; and Trevithick, the engine.

Relation of metals study to other school subjects; geography and reading: location of mines, description of mines, transportation of ores, manufacture of iron and steel, comparison of metal output of the United States with other countries; reading and history: notable inventors and inventions, growth of industrial life as a result; use of metals, effect of metals upon historic movements; English, talks and compositions along the lines suggested; opening exercises; Thor and his Hammer, Siegfried, Laki, Vikings, Greek Stories, Rhinegold, the Story of Maydole, Russel Jennings, together with poems and songs of the metal industries.

§ 2. Courses for Sixth and Seventh Grade Boys

With the beginning of the sixth grade, it is desirable for boys and girls to pursue the various forms of manipulative work in separate classes because of the different types of the constructive work necessary.

Purposes of Courses. The keynote of the industrial courses for boys in the sixth and seventh grades should be the development of appreciation and understanding of modern industries in all their varying aspects. Upon this basis it is necessary that all boys be required to pursue such courses as, in adult life all must participate in some measure in the solution of problems incident

to a complex industrial order. Aside from the fact that such training assists the boys in understanding industrial problems which may confront them, it is also justified by reason of the number of boys, (and in Hammond the very large number) who will find profitable industrial employment immediately upon leaving school. Probably one-half the boys completing the seventh grade in the Hammond public schools directly enter manufacturing establishments.

To develop this needed appreciation and understanding of the industrial work of the community, and, in order to constitute a preliminary introduction to industrial life, courses must be organized upon an entirely different basis from those taught at present in the shops. From the description of the present shop courses, it will be noted that they are traditional manual training courses of a high type. They are organized upon the principle of systematic development of skill in the use of hand woodworking tools and processes, coupled with the logical development of skill in mechanical drawing. Such courses were formerly justified upon the theory of the transference of training, the development of general habits of thinking and accuracy, but, though these beliefs have passed, the courses have still held their places in the school programs because of the interest of the pupils in hand manipulative work.

It is obvious that courses involving only the use of wood, can in no way meet the requirements of the present industrial situation, in which metal, concrete and electrical construction play such a large and important part. It is therefore recommended that all of the present woodworking shops be re-organized so as to make possible work in metal, concrete and electrical construction. With the exception of the Central School shop, present floor space is practically sufficient to meet these needs. If necessary, some of the woodworking benches could be removed to provide additional space.

Equipment. The present woodworking equipment, including benches and hand tools, is sufficient and adequate for sixth and seventh grade work in wood.

Metal equipment for each shop should be provided, but this equipment for the sixth and seventh grades should not be of the expensive machine shop type. It is thought that the following would be sufficient: anvil stakes, with a flat and riveting head for each wood bench (stake so shaped as to fit into bench-shop holes);

three tinner's snips; three or four riveting hammers; two or three hand punches and one lever punch; two metal working vises; sheet metal brake and two soldering outfits; two hand-blown blacksmiths' forges, with necessary blacksmiths' tools; one large anvil; one post drill; one die plate; one pipe cutter and metal files, etc. The casting flasks for soft metal, together with necessary casting tools, should be made by the boys.

The equipment for electrical work should include: six or eight flat nose and round pliers; small fittings and supplies, such as insulators, switches, push buttons, bells, batteries; telephone and telegraph instruments, etc. Much of the equipment may be constructed by the boys.

The concrete equipment may be made by the boys, and the equipment will necessarily vary with the type of concrete construction undertaken. Shovels, hoes, and various kind of trowels, however, must be provided.

Time Allotment. The present time allotment of three hours or one-half day weekly is probably sufficient for the actual shop work; this should be exclusive, however, of mechanical drawing. It is advised that the mechanical drawing course become a part of the drawing and design course for boys. Provision for the industrial and social studies hereafter outlined should also be made in addition to this three-hour period.

Courses. Definite, clear-cut courses, involving the use of one material to the exclusion of all others are, in the main, not desirable. Thus, a project involving the casting of soft metal, would also involve making the casting flask. Clearness and pointedness, however, are gained by considering various aspects of the course separately.

Woodworking. This work should involve two distinct aspects, one, related to carpentry, and the other, to cabinet work, and these units should be taken up in the order named. Under the phase of woodwork related to carpentry would fall the making of forms for concrete construction, such as retaining and side walls and curbs, building and repairing fences, sheds or bicycle racks. This work would require the use of rough lumber and the saw, hammer, hatchet, rule and sometimes the plane and carpenter's square, and should, in the main, be carried on out of doors away from the restricting limits of the shop and benches. Woodwork, as related to cabinet construction, would be very similar to the course as outlined at present, but the number of projects would necessarily be very much reduced.

Metal Working. This should involve the use of sheet metal and hot and cold bar metal and soft metal. Manipulative work should involve the four fundamental operations: casting, shaping, soldering or welding, and plating. The casting of a paper weight in soft metal is suggested as an example of a project which might be used successfully. This would involve making the pattern from wood, considering design and draft; the construction of the casting flask, and the moulding tools; and, finally actually moulding and casting the paper weight. The making of a small metal motor boat affords a considerable variety of problems; the shaping of the sheet metal frame, and the metal ribs; soldering and riveting the frame and ribs; the mounting of the motor, considering balance and pitch of shaft; casting the propeller, and mounting it upon the propeller shaft; connecting the shaft to the motor by means of a universal or spring joint; mounting batteries in boat and making necessary connections; and finally, painting and finishing.

In bar metal, angle irons, braces, bolts and chains, together with projects involved in making small school repairs and additional equipment, are suggested.

Concrete Construction. This work should be based upon the practical needs of the schools and homes, and might include retention walls, curbs, walks, in addition to small projects adapted to shop procedure, such as flower pots, etc. Home project work should be included.

Electrical Construction. This work should involve three aspects: first, relative to motors and dynamos; second, bell, alarm and light installation; third, instrument installation and operation, including the telegraph and telephone, etc. The parts for small motors may be purchased and the problem of assembling involves the basic motor and dynamo theory. Such a motor, when assembled, would be useful in operating mechanical toys, such as the motor boat previously suggested. Installation of bells and electric lights may be taught by wiring placed upon vertical frames which could be constructed by the boys.

Painting and Finishing. No special bench equipment is necessary for this work save brushes, etc. This work might involve the painting of fences, sheds, and outhouses, consideration to be given to preparing and mixing paints and colors, to preparing surfaces for the paint and to the priming and finishing coats. Painting and enameling metal surfaces should also be included,

and the products of the woodworking course will afford the necessary opportunity for staining and finishing cabinet pieces. This latter work, however, is of least relative importance, as unskilled laborers are usually employed in applying stains.

Working Program and Schedules. The following is a suggested working schedule for the industrial work of the sixth and seventh grade boys on the basis of a thirty-six-weeks term, and is presented to show the feasibility of the suggested course.

Woodworking	9	Weeks
Metal work.....	9	"
Electrical construction.....	9	"
Concrete construction.....	5	"
Painting and finishing.....	4	"

Industrial and Social Studies. Provision for manipulative work in the materials suggested is not sufficient, as industrial and social studies are equally important and vital as a preliminary introduction to industry and its problems. Such studies, in order to be vital, should be a direct outgrowth and an integral part of the shop work and should include lectures by shop men, industrial excursions and supplemental reading and discussion, concerning manufacturing processes, industrial hazards and their prevention, wages, hours of labor and opportunities for service in industry. Personal hygiene and sanitation, together with a consideration of the relation of the worker to his work, his employer, and his fellow workmen, and his civic and home responsibilities, should also receive attention. About sixty minutes weekly are necessary for this work.*

Constructive Design. It is suggested that those elements of design for boys now taught in the drawing and art course, and the work in mechanical drawing, be merged into a single course to be termed constructive design. Boys of this age are too young to attempt, with success, systematic work in mechanical drawing, and its early introduction in a closely organized course tends to develop wrong standards and habits which must later be corrected. Furthermore, in planning most projects, the elements of design and mechanical representation are so interrelated that one organic whole is really formed. Thus, in the planning of the paper weight to be cast in soft metal, consideration must be given to its shape and size and the decoration upon its surfaces.

* For a detailed outline of such a course see article, R. J. Leonard, Teachers College Record, Jan. 1913.

A free hand representation of the shape, size and general decoration must be made, after which a careful plan, full size or to scale must follow. The design and mechanical elements are inseparable, and much is lost by not combining them in one course. Time and effort will be saved by this procedure, and a better quality of work will result therefrom. Sixty minutes per week will be necessary for this course, and it should preferably be taught by the shop teachers.

§ 3. Courses for Sixth and Seventh Grade Girls

Purposes of Courses. The purpose to be accomplished by the household and industrial courses for girls, as in the case of the boys, is to acquaint them with desirable productive work open to young women, including home-making. Considering the large number of girls who work for wages in Hammond, and who leave school upon or prior to, completing the elementary school, the work of these grades is of very vital importance.

It is obvious that courses for girls including only the technical aspects of sewing and cooking, while good and necessary, are not sufficiently broad to serve as a basis for determining interests, capacities or possibilities for future wage earning. It is needless to discuss the desirability of young women going to work, for the fact is that they are working, and will work in the future in increasing numbers, and the school must either help train them for wage earning or permit them to work untrained.*

Present Courses. The present courses in cooking and sewing are well organized, and the time allotment, three hours per week, is probably sufficient at present. There is danger, however, in following the close organization indicated in the course outlines, that the most practical problems for certain girls will be entirely overlooked as they might not fall within the logical scheme of development and sequence in subject matter. Thus, the most vital problem for a seventh-grade girl might be making a gingham school dress in a very short period of time, perhaps the first week of the school term, and a sewing course—no matter how well organized and broad in content and scope,—which would prohibit such a project at such a time, is not to be recommended.

* See "A Study of the People of Indiana and Their Occupations," R. J. Leonard, Bulletin, Indiana University, Bloomington, Indiana, 1915, for the facts showing the number of women at work in Indiana.

Equipment. It is unfortunate that the cooking rooms in all the schools are located in the basements, but on the other hand, the Schools of Hammond are to be commended for making provision for these cooking rooms by remodeling the old buildings, for, if the basements had not been utilized, it would have been impossible, up to the present, to have any cooking at all in the Hammond schools. In like manner, it is also unfortunate that sewing must be carried on in the cooking rooms, but this is by far better than having no sewing at all. It is to be hoped in the future, however, that in the building of new schools, provision will be made for girls' courses in well-lighted and ventilated rooms above the basement floor.

Cooking Equipment. Cooking rooms are equipped in the usual manner with cooking tables, utensils, etc. The floors of some of the kitchens should be covered with linoleum and some of the walls are in need of retinting or painting.*

Sewing Equipment. It is highly desirable that separate rooms be provided for sewing and other industrial and household arts courses. Such rooms should be well lighted, and should be equipped with individual sewing tables, a large cutting table, lockers for girls' work and stock, mirrors, etc. Sewing machines are already provided in the present equipment. The individual tables should be made in the shops by the boys.

Cottage for Girls' Work. One of the best solutions for the problem of equipment is in renting or purchasing cottages located near the schools, and using these as centers for this work. The cottages should not necessarily be modern and up to date and in good condition, for if they are, they preclude experience in meeting some of the real problems of home making. Having access to such cottages affords a wide range of opportunities in home decoration, sanitation, selection of furniture, draperies and the care of the home. These cottages might also be used as neighborhood centers for Parents' Clubs and other organizations. Such a plan as the one suggested might well be first tried in the neighborhood of the Standard Steel Car plant.

Sewing. The close analysis and systematization of the sewing processes worked out by the training schools for domestic art teachers, has tended to devitalize the field of sewing, and to

* One-half of the Hammond school buildings are tinted every year and the rooms in bad condition are scheduled to be tinted during the coming summer vacation.

approach this live subject from an academic point of view. Teachers must break away from the systematic methods and organize and teach courses, not as they themselves were taught, but in the light of modern needs and conditions.

The course should be based upon the actual making of clothing, this being the objective, not using such projects as though they afforded interesting chances for the application of stitches. This work should include a study of the trade designations of cloth, cost, methods of testing for quality, and the actual purchase of cloth for specific purposes. Necessary supplies, ordinarily selected by the teachers and distributed to the pupils, should be selected by the girls themselves, so as to afford the widest possible range of real experience.

Some garments should be made according to factory methods, thus illustrating specialization and shop methods. A detailed study should be made of manufacturing methods of various textiles, of the actual manufacture of shoes, stockings, underwear and other garments. In some sections of the city, the making of hats might well be introduced in these grades.

Cooking. A course in cooking, as now organized, is very practical and highly satisfactory. It should, however, be enlarged in scope to include marketing, requiring groups of pupils to purchase the meats, vegetables, and staples to be used in the cooking lessons. A study of the home garden should be included. The present custom of preparing school lunches is highly commendable, and girls in all districts in Hammond should have the privilege of sharing in this most important training.

Design and Home Decoration. It is strongly advised that those elements of design now included in the drawing courses be centered about the practical work of selecting clothing and furnishing and decorating the home. Thus a considerable portion of the work related to projects in paper and cardboard would be excluded. The phases of art tending to develop appreciation of great art productions should be retained and enlarged in scope.

In the main, the work in design, as related to clothing, should be an outgrowth of the work in sewing. Certain phases of the present High School costume design course should also be included in these grades. The selective element should be empha-

sized in this course, requiring pupils to visit stores with teachers and select dresses, hats, ribbons, keeping in mind cost, quality, color and adaptability.

Related to the home, consideration should be given to its selection, including location, size, considering cost and health; to its furnishings, including draperies, carpets, furniture; to its decoration, including pictures, wall paper, wall tints, etc. At least sixty minutes per week should be devoted to this work.

Civic, Industrial and Personal Studies. Manipulative work in sewing and cooking and courses in design and home decorations is not entirely adequate to meet the needs of Hammond girls, as civic, industrial and personal studies are equally important.

Such studies should include informational material relative to modern industries and industrial life: opportunities for wage earning in various fields, training necessary for success, wages, hours of labor, hazards, opportunities for service, for promotion, etc. Every possible effort should be made to demonstrate to girls the necessity of remaining in school, at least till 16 years of age, by showing them that the lines of employment open to them prior to this age are in the main not desirable.

Studies in personal and home hygiene and health should include personal care, first aid to the injured, care and feeding of the baby, and the home and school lunch, etc. Provision should be made for a study of the family budget. At least sixty minutes per week should be devoted to this work.

PART 2. SPECIAL ELEMENTARY INDUSTRIAL CLASSES

Boys' Class. Every school system has overage boys who have lost all interest in the regular work and who intend to leave and go to work as soon as possible. That there is such a group in Hammond is partly evidenced by the number of 13 and 14 year old boys in the lower elementary grades. They are not delinquents, incorrigibles or mental defectives. For such boys, many larger cities have established elementary industrial schools. The Richmond Survey recommended the establishment of such a school for Richmond.* In Hammond, the needs of these boys

* See Manual Training Magazine, January, 1915. Plan for an Elementary Industrial School, Richmond. This report contains the outline of the courses and equipment proposed.

could be met by the formation of one or two classes, membership in these classes to be entirely limited to this group.

This class might be formed at the Irving School, as the building is well located for this purpose. The class should be open to boys enrolled in the elementary schools, who should be selected by the Superintendent, principals and teachers upon such conditions as seem best to meet the specific needs of individuals. In the main, the class should be limited to those who have completed the fifth grade.

Course of Study. One-half of each day should be devoted to industrial work and the other half to the related academic work. Under the proposed scheme of re-organization, the course should be two years in length, and those completing it should be permitted to enter the High School unreservedly.

The industrial work should include all the phases outlined under the proposed sixth and seventh grade industrial courses, but the time schedule must be modified to meet the situation. Provision for printing should also be made by permitting the boys to pursue this course three hours per week in the Central school or the new High School. The course in industrial and social studies and constructive design should be included as outlined, together with English, arithmetic, geography, history, all so organized as to bear directly upon the boys' shop interests and experiences.

Girls' Class. There are some girls in the elementary schools of Hammond, who are considerably over age, who have lost interest in the regular school work and who will leave as soon as the law allows and enter wage earning pursuits. It is recommended that a class for such girls be formed and that one-half of each day be given to the household and industrial courses previously outlined and the other half to related academic work. The basis for selecting girls for these classes should be the individual needs, and girls, upon completing the two years' work, should be permitted to enter the High School unreservedly. In the main, this class should be limited to those who have completed the fifth grade.

PART 3. HIGH SCHOOL COURSES

As previously indicated, all courses recommended are based upon the general plan of a seven year elementary school and a

four and five year secondary school. The plans suggested for the vocational department for boys and girls are devised with the view of their incorporation within the High School, it being held unnecessary and undesirable at this time to establish a separate vocational school. As these departments will be part of the High School, problems of general administration will devolve upon the Principal, but the specific supervision of the departments should be vested in the Director of Vocational Education whose appointment is hereafter recommended.

§ 1. Vocational Department for Boys

General Organization. The vocational department for boys should be organized with the specific purpose of training boys in the best possible manner for wage earning pursuits. In keeping with the current practice, boys in this department should from the outset, spend about one-half of each day in manipulative work and the other half in related and academic subjects.

The department should be open to boys having completed the elementary school or to others who are over fourteen years of age and who might profit most by the type of instruction hereafter described.

In view of the fact that the boys in the first year High School are only 13 years of age, the question arises: Shall boys upon entering the department be permitted to immediately specialize upon one industrial course to the exclusion of other industrial courses? For the great majority of pupils, such early specialization is not desirable, as such selection presupposes that the boys have decided upon the particular vocation which they wish to follow for life, or permits them to specialize upon mere "hobbies" or passing interests. There are, however, many overage boys who will attend the school but a year or two, for whom this specialization would be very helpful, and for these it must be provided.

For the first two years, therefore, it is proposed that the work be organized and related to a variety of trades and pursuits, with the view of helping boys determine the specific work which they wish to follow and specialize upon, in the third and subsequent years. As already suggested, under some conditions, boys should be permitted to specialize in the first or second

years. In the final analysis, the time when vocational education should be begun, which aims directly to prepare for a specific trade or pursuit, is matter which must be determined in each individual case considering all the factors involved.

The course for the normal boy who is not considerably over-age and who can remain in the high school for three or four years might be as follows: One-half of each day devoted to industrial work to include for the first two years various lines of woodworking, metal working, electrical construction or printing, etc.; the other half of each day to be devoted to mathematics, science or draughting and academic subjects directly related to the shop work. Upon the completion of the second year he should select one particular trade and thereafter spend one-half of each day in trade manipulative work, and the other half in related mathematics, science and draughting related to trade, together with academic work.

For the boy, however, whose interest has been determined and who has definitely selected a trade prior to the completing of the second year general industrial course, the specialized trade course, as outlined for the third and subsequent years, should begin at the time the definite decision is reached.

a. Relation of Courses to Hammond Industries

The summarized skilled trades in which many men are employed in Hammond are as follows:

Metal Trades. It will be noted from the analysis of the metal trades of Hammond that the skilled lines of work employing men in considerable numbers are as follows:

- Machinists
- Car finishers and trimmers
- Sheet metal workers
- Tinners and tinsmiths
- Instrument makers
- Blacksmiths

Woodworking Trades. The skilled lines in woodworking in which many men are employed are:

- Car builders
- Cabinet makers
- Wood machine hands
- Carpenters

Printing and Bookbinding. Skilled lines in printing and bookbinding employing many men are:

Pressmen
Foundrymen
Hand and machine compositors
Back rounders, case makers and forwarders

Electrical Pursuits. Skilled lines in electrical work, in which many men are employed are:

General electricians
Electricians and linemen
Motor assemblers, armature winders, etc.

Plumbers, Pipe Fitters, Etc. Skilled lines are as follows:

Steam fitters
Pipe and air brake fitters
Plumbers
Millwrights
Stationary engineers

Painting and Finishing. The skilled lines employing men in considerable numbers are:

House painters
Car painters and finishers
White enamellers
Wood finishers

Many other skilled lines are represented but require relatively very few men; among these are piano tuners, player-piano installers, coopers, marbellers, yeast makers, spirit runners, tailors, stencil cutters and surgical brace makers.

Specific Vocational Courses. As there are certain dominant lines of industrial work in the community open to skilled men, and, as these are the constant industrial pursuits found in most communities, it is suggested that in the vocational industrial department provision be made to teach the following: Woodworking, including carpentry and cabinetmaking; metal working, including sheet metal work; blacksmithing and machine shop work; electrical work, including interior wiring, fixture or instrument installation, and motor and dynamo work; plumbing and steamfitting; printing and bookbinding; and painting and finishing.

b. Suggested Program Schedules

First and Second Year Shop Courses. For the shop work of the first and second years, this program schedule is suggested, but in no event, should it be assumed that it is to be adopted without studying the situation more closely, taking into consideration the individual boys who may be enrolled in the department:

First Year	Second Year
One-half of Each Day	One-half of Each Day
Woodworking.....12 weeks	Plumbing.....12 weeks
Printing.....12 weeks	Electrical construction ...12 weeks
Metal work.....12 weeks	Painting and finishing....12 weeks

Vocational Courses. Boys, upon completing the work of the second year should select one trade, from among any of the above lines, and one-half of each day should be devoted to the manipulative work of the trade selected.

Related Courses. Industrial science, physics, chemistry and mathematics, draughting, and industrial and social studies, closely related to the specific industrial courses, should be provided.

Academic Courses. These academic courses should be included,—English, history and mathematics, and the last two should be particularly related to industry.

c. First and Second Year Shop Course Outlines

Woodworking. The course in woodworking should include the elements of carpentry and cabinetmaking, and require the use of bench tools and power machines, such as platform and circular saw, planer, joiner and mortising machine. Practical problems in building school equipment and repairing should be selected. In the third year pattern making might be introduced.

Printing. The printing course should include hand compositing in all its various aspects, as well as press operating and foundry work. Those electing this work in the third year

should have use of linotype and monotype machines. The work should involve printing cards, forms, report blanks and booklets which might be required by the school department.

Metal Working. The course should include three sorts of metal work: sheet metal work, machine work, and blacksmithing and forging. In sheet metal working, simple projects involving shaping, soldering, etc., should be selected. In machine work, typical machines should be operated: the lathe, drill, punch press, planer, etc.; and in blacksmithing the use of cold and hot bar metal should be included. All projects should be of a very practical nature, there being no place in such a course for exercises.

Plumbing and Pipe Fitting. This course should include the cutting, threading and installing of lines of pipe to fixtures of various sorts, and the setting of fixtures, such as sinks, drains or tubs, together with provision for plan reading, cost estimating and related science. Small repair jobs about the school premises will afford a considerable variety of practical problems.

Electrical Construction. Electrical work should include interior bell and light wiring, study of motors, dynamos and of instruments, such as telephones, telegraph, etc. The use of measuring instruments should be included. Provision for plan reading, cost estimating and the related science should be made.

Painting and Finishing. This work should include a study of pigments, colors, oils and spirits and methods of mixing and preparing paints, stains and varnishes. As related to building construction, it should include preparing exterior and interior surfaces, and the application of priming, first and finishing coats of paint. Related to metal finishing, it should include preparing metal surface and applying and baking enamel; and related to wood finishing, it should include preparing the surface, applying stain and varnish, rubbing and polishing.

d. Outlines of Related Courses

Industrial Science. Industrial science should include industrial chemistry, practical physics and mathematics, all to be a natural outgrowth of the shop work and to be presented in such a manner as to really develop, in a vital way, the broad basic principles of science, as applied to the ordinary industrial pursuits.

Draughting. Some form of draughting should accompany every industrial course, and the purpose of this work, should not be to develop draughtsmen, but to provide a working knowledge of the necessary elements of plan drawing and reading. Thus, a sheet metal worker, while not a draughtsman, must be able to figure and cut patterns of receptacles, cornices and drains.

Industrial and Social Studies. This course should be organized as indicated under this head for the sixth and seventh grade boys. It should include shop and factory excursions, illustrated lectures, discussions, etc., concerning manufacturing processes, relation of worker to employer, to fellow workman and wage studies, hazards, etc. Industrial hygiene and sanitation should form an important part of the courses.

e. Vocational Courses.

Shop Courses. The specific vocational courses which should be provided for pupils who have completed the introductory industrial course, or for others who are ready for them, are as follows:

Woodworking Trades: Carpentry, cabinet making and pattern making.

Metal Working: Machine working, blacksmithing and sheet metal working.

Printing: Composing, proofreading, press operating and linotype or monotype operating and foundry work.

Plumbing and Pipe Fitting: Plumbing, steam and pipe fitting.

Electrical Work: Motor and dynamo work; interior wiring and fixture installation.

Painting and Finishing: House painting, enameling, and polishing.

It will be impossible and undesirable to make provisions for all these lines at once. Only those courses should be installed which the department can care for in an efficient manner.

Co-operative Courses. Many boys who have completed the two years' Industrial course proposed, and who have discovered the lines of work they wish to follow, might profit most by leaving school and going to work in factories, where they can have the opportunity of meeting practical problems, provided their education could be continued on a co-operative basis. For such boys, their continued education becomes a matter requiring co-operation between the shops and schools. From the shop side,

work would have to be organized so as to be educative and time would have to be provided for school attendance. From the school side, instruction must be practical and helpful in meeting actual shop problems.

f. Equipment.

Considering the fact that a new High School building is soon to be constructed, it is of special importance to indicate in a general way, the rooms and floor space necessary for carrying out the courses suggested. At least six rooms will be necessary to carry out the program suggested, but it will not be necessary to equip them all at the start, as valuable opportunity for practical experience will be afforded by having the boys make as much of the equipment as possible. The floor space as provided in the plans for the new High School will be adequate for the immediate needs of the department. As the initial equipment, the following is suggested. This should be added to in keeping with the growing needs of the department.

Woodworking. One bench and machine room, together with a stock room, located so as to permit lumber to be received from the street or driveway, should be provided. The equipment should include woodworking benches, bench and general tools, power planer, platform and circular saw and joiner and mortising machine. Supply closets and lockers for students are essential, together with staining bench or table. Boys, with the aid of the teacher, should build the benches and lockers.

Printing. The present printing equipment is strictly up to date and adequate for the beginning work of this department. In the new building, a well lighted room should be provided and it should be considerably larger than the one now used. Provision for foundry work should also be made.

Metal Working. It is advised that at the start the metal-working equipment be placed in one room; that the equipment be simple and that no attempt be made to provide a complete machine shop, sheet metal and forge equipment, such as were formerly thought necessary in technical departments of high schools. In the future, as enrollment increases, it will be necessary to provide several rooms for metal working, in which case it may be best to place the sheet metal and forge equipment in separate rooms; but in the beginning, at least, much will be gained by placing all metal equipment in one room and selecting projects requiring the use of both forges and machines.

For the machine equipment, at least the following type machines are recommended: Lathe, drill, punch press, planer and tool grinder. The sheet metal equipment should include one or two breaks, punches, shears, soldering outfits, etc., and the forge equipment should include four or five hand blown forges and blacksmiths' anvils, together with blacksmiths' tools and a small cupola. There should also be one long bench for sheet metal work and a number of individual benches, all of which should be made by the boys, it being necessary, however, to purchase the vises and anvil stacks and other small equipment for equipping these benches. The selection of this equipment presupposes that boys will work in small groups and that problems will be selected which will require a number of different processes.

Plumbing and Pipe Fitting. The first requisite for this work is an unfinished room, floored, but with exposed wall studs and ceiling joists. The simplest possible equipment should be purchased, to include several kits of individual tools, pipe cutters and wrenches, taps and dies and one long working bench, with vise. Boys should build and install as much of the equipment as possible. Discarded plumbing fixtures, such as tubs, sinks and bowls, would doubtless be provided by local plumbing establishments.

Electrical Construction. A shop similar to the plumbing room should be provided for electrical construction. Unfinished walls and ceiling will provide opportunity for interior light wiring and fixture installation. By erecting temporary walls dividing one or two sides of the room into smaller rooms or sections of rooms, further opportunity for more complicated wiring will be provided. One or two long benches will be necessary for motor and dynamo work, and small tools, fittings and testing apparatus should be provided. Boys should construct the benches, stands and temporary walls as they are needed.

Painting and Finishing. A bare plastered room, with unfinished window casings and door frames is necessary for this work. Boys in the carpentry class will thus be afforded the practical problem of interior finishing, and the boys in the painting and finishing class, the practical problem of preparing the surfaces for the paint, stain or varnish. By erecting temporary partitions dividing one or two of the walls into several

sections and providing windows and doors, opportunities for interior finishing will be multiplied. As tearing away and remodeling interior wood work and removing old paint and varnish is quite as much the work of the carpenter and painter as installing new work, a room as described will continually afford opportunity for practical problems. Cabinet projects to be stained and polished should be taken to this room. The equipment should include a metal top covered staining bench, metal lined cupboards for brushes, stains, oils and varnishes.

Locker and Wash Room. At least one locker and wash room should be provided for shop boys, and it is thought the most satisfactory scheme would be to have one combination room for this purpose, thus simplifying the problem of supervision.

§ 2. Vocational Department for Girls

General Organization. The vocational department for girls should be organized for the purpose of providing opportunities for specific training for profitable employment, including home making. It is assumed that girls in this department shall spend one-half of each day in manipulative work and the other half in directly related or academic work. The department should be open to girls having completed the seventh grade and to those over fourteen years of age, who have not completed this grade, but who, for good reasons should begin a vocational course.

The work of the first two years should be organized so as to contain the elements of home making as well as lines of profitable employment, and girls upon the completion of the second year, should elect either the trade or homemaking courses for the subsequent years. Provision should be made, however, for girls to specialize upon trade courses in the first or second years, if such specialization will best meet their educational needs.

Attitude Towards Women's Work. That Hammond girls do work is indicated from the facts that of the 160 working permits studied, 65 were issued to girls and that of the 159 reports of young people at work under 17 years of age, 90 were girls.

A sane and wholesome attitude towards women's work is stated by Mrs. O'Leary:

"The education of the girl who comes to the vocational school is a double problem. It must include training in two distinct vocations, neither of which can be considered sufficiently permanent to justify neglect of the other. The training in either one of these vocations, moreover, is not adequate preparation for efficiency in the other.

"As compared with the boy, the future of the girl admits of a variety of adjustments:

(1). She may, like the boy, go into the industry to remain as long as she is physically able.

(2). She may, and most often does, go into industry for a short period, variously estimated at from three to seven years, and then permanently become a home maker.

(3). Having left the industry for her own home, circumstances may compel her to return to wage earning.

(4). She may be under the necessity of serving a double capacity, being compelled to support the home which she manages.

"Every evidence goes to show that, while the girl may enter the trade, she is, in the majority of cases, at one time or another, a homemaker. In confirmation of this is her personal, if unconfessed, point of view that wage earning for her is but a temporary affair, which she will leave for a permanent position in her own home. If this home is to be a going concern, the woman who manages it must be trained for her work as thoroughly as the man who supports it." *

a. Relation of Courses to Hammond Industries

In general, the industrial work in which young women are employed in Hammond requires no special school vocational training. This is true in the following lines in which girls are employed: Glue spreading; soft bookbinding; automatic and hand tipping; collating; sewing machine operating; hand and point folding; jogging; wire stitching; gathering; food preserving; packing and labelling; sewing machine operating in making shirts, aprons and mattresses and porch furniture making; and paper tube making and box finishing. Direct and specific school training is not needed in these fields, but the possibilities in such work should be discussed in the course in industrial and social studies hereafter suggested.

On the other hand, among the pursuits open to Hammond girls, for which specific school training is needed, aside from

*"Cooking in the Vocation School" Iris Prouty O'Leary, Bulletin U. S. Bureau of Education. Whole Number 625.

the commercial and professional lines are:

Dressmaking
 Millinery
 Salesmanship
 Nursing
 Catering
 Lunch room keeping
 Design and Home Decoration*

b. Suggested Program Schedules

Courses for First and Second Years. The following courses for the first and second years are suggested: cooking, food chemistry, sewing and textile study, household physics, millinery, costume design, home management and salesmanship.

Program Schedule. This is suggested as a tentative schedule but it should not be adopted without a careful study of the needs of the girls actually enrolled in the Department:

First Year—One-half of Each Day

First Semester	Second Semester
Sewing and Textile Study.....2 hours daily Costume Designing...1 hour daily Salesmanship.....1 hour daily	Cooking and Food Chemistry.....2 hours daily Home Management...1 hour daily Salesmanship.....1 hour daily

Second Year—One-half of Each Day

First Semester	Second Semester
Sewing and Textile Study.....2 hours daily Costume Designing or Home Management.1 hour daily Millinery or Sales- manship.....1 hour daily	Cooking and Food Chemistry.....2 hours daily Household Physics...1 hour daily Millinery or Sales- manship.....1 hour daily

Related Courses. Provision should be made for a course dealing with industrial, social and personal problems. This

* These pursuits were not analyzed in Hammond, but there are sufficient data to justify the statement that training is required. Though opportunities for employment in all these lines may not be open in Hammond, this limitation is removed through the close proximity of Chicago.

course should include study of industries and possibilities for wage earning and social service, relation of worker to employer and to other workers, together with all phases of industrial and personal hygiene.

Academic Courses. Provision should be made for English, music, history and gymnasium.

c. First and Second Year Course Outlines

Sewing. The traditional course in sewing, organized from an academic standpoint, is no longer considered satisfactory. The course should include plain and machine sewing, part of which should be upon marketable garments of varying styles and fabrics in order to give a general knowledge of materials as well as processes in sewing and garment construction. Occasionally, garments should be made according to factory methods. The textile study suggested should be an organic part of the work in sewing, for if it is organized as a separate course there will be a tendency to abstract and systematize the work to such a degree that it will lose all practical value.

Cooking. The course in cooking should be organized upon a very broad basis, in order to train in cooking as a home art, and to indicate its vocational possibilities. Portions of this work should center about the preparation of the school lunch for pupils and teachers, and the entire work of marketing and purchasing food materials, preparing menus, and estimating costs for these lunches, should fall entirely upon this department. Commercial markets may be secured for portions of the kitchen products, and in this connection Mrs. O'Leary's bulletin to which reference has been previously made, will be found very suggestive. A course such as outlined will indicate the possibilities of catering, lunch room keeping, as well as other lines, from the vocational standpoint. The work in food chemistry should be an organic part of the course in cooking, for if it is organized as a separate unit, there will be a very strong tendency to present the work from a logical point of view, developing principles from the simple to the complex, etc., out of their relation to home problems. Such an organization, though interesting and good from an academic standpoint, from a practical point of view, will defeat the desired ends.

Costume Design. The present unit of the High School course in drawing, dealing with costume designing, should form the basis for a course devoted entirely to this work. It will be noted that, according to the tentative proposals, those pursuing sewing courses will take costume designing, and that therefore the two courses must be closely correlated.

Home Management. This course should deal with the selection of the home, considering location, sanitation and cost; the decoration and care of the home, including selection of furniture, pictures, draperies and wall paper; the distribution of income for various needed expenditures and other problems related to home management. All the needed work in drawing and design should center about the problems indicated.

Household Physics. The present course in household physics, now open to senior girls, should be provided for girls in the second year vocational course. A course upon the basis of the one as now taught will be highly satisfactory.

Millinery. The work in millinery should include making of trimmings, flowers and hat frames, as well as frame covering, hat decorating and remodelling. Straw sewing might also be taught in certain seasons.

Salesmanship. This course should be organized in the vocational department, rather than the commercial department, because success in this work for women is largely conditioned upon a knowledge of color, textiles and garment construction. It should include the necessary arithmetic, study of methods of selling, etc.

d. Vocational Courses

Departments and Courses. Upon completing the courses outlined for the first and second years, girls should select either the home making or trade courses, and in the case of the trade courses, should select one or two trades. Trade courses, however, should be open to those girls before completing the two years' work, who might profit most by them.

The homemaking courses should include those elements of theory and practice directly related to homemaking along the lines previously suggested.

The following trade courses might be provided:

Dressmaking
Costume Designing
Millinery
Cooking
Nursing
Salesmanship

It will be impossible to make provisions at once for all these trade courses, and only those lines should be started which can be carried out in first class order.

e. Equipment

In the new High School building, one wing, or a considerable part of one floor, will be necessary for the Vocational Department for girls. It is thought that the provisions for the Department in the plans for the new High School are adequate, if the laboratory room in the southeast corner of the third floor could be used for girls' work, thereby giving this department the entire unbroken wing.

Sewing. There should be at least two rooms exclusively devoted to sewing and millinery and textile work. They should be large and well lighted. A small fitting room is also essential. The rooms should be equipped with cupboards for stock and lockers for girls' work, individual sewing tables and one large cutting, pattern and draughting table. Sewing machines and one or two looms are necessary. The sewing tables should be made by the boys enrolled in the shop courses. A separate room for textile study is thought unnecessary.

Cooking. It is strongly recommended that the so-called unit system of kitchens be adopted for one of the cooking laboratories. By this arrangement an alcove, section of a room, or small room is provided for each group of four or five girls, and each unit is equipped as home kitchen. A common pantry and store room is necessary. Three or four such unit kitchens will probably meet the present needs. For a complete description of this home unit kitchen plan with pictures and description of kitchens so equipped and successfully operated, see pages 26 to 30 "Cooking in the Vocational School," by Mrs. O'Leary.* Adjoining these unit kitchens or the regular cooking room, there should be a room equipped as a food chemistry laboratory.

* Ibid.

Studio. In all probability, two studio rooms will be needed to accommodate the various phases of design necessary to meet the needs of the vocational department. Each studio room should be properly lighted and provided with cupboards for stock, lockers for pupils' boards and work, and also individual studio stands. Each room should be designed for a class of about fifteen or twenty pupils.

Household Physics. This course may be conducted in the regular physics room.

Salesmanship. No special room is necessary for this work.

Provision for Growth. One or two years' experience in conducting girls' prevocational and vocational courses will doubtless indicate the need for enlargement of the lines suggested and the introduction of altogether new lines. It is therefore recommended that at least three rooms other than those required for the courses suggested be provided for the use of the vocational department.

§ 3. Courses for Regular High School Students.

Shop Courses. The shop courses outlined should be open to regular high school students, but such students should not be enrolled in the same classes with the boys whose work primarily falls in the vocational department and who spend one-half of their time in shop work. Time schedules, in keeping with the regular high school program should be followed by the boys electing industrial courses.

Industrial Chemistry. There is an unlimited field of opportunity in industrial chemistry, for those properly trained, or even with a preliminary training. Chemists are employed in four of the Hammond establishments and other factories send materials to Chicago to be tested and analyzed. Such a course should be open to Juniors, and while it must be broad in scope to develop fundamental principles, the practical applications as related to the iron and steel industry, food preserving, glue making, textiles and other primal industries, should dominate.

Draughting. The present course in draughting is well organized and splendidly taught and is admirably suited to boys who wish to become draughtsmen and engineers. This course, however, should not be confused with the one suggested for boys majoring in industrial courses. To achieve success in

draughting, a general high school education is necessary. It is recommended that the present course be continued as it is now organized, but that pupils be graded more closely so that one class will contain only boys of the same high school grade. This is needed in order to simplify the problem of instruction.

Homemaking and Trade Courses. The courses outlined and suggested for the vocational department for girls, should be open to those pursuing the regular high school course. These girls, however, should be enrolled in separate classes, and time schedules should be in keeping with other courses elected and the high school program.

PART 4. EVENING SCHOOL COURSES

There are three general problems in night school work and, of the three, the last is by far the most difficult.

1. To provide courses actually needed in the community.
2. To enroll students in the evening school for whom those courses were designed.
3. To retain enrolled students in regular attendance for the duration of the course.

Neighborhood Buildings. Considering the varied composition of the residents of Hammond and the scattered settlements in various parts of the city, this question is of vital importance: Will one centrally located night school meet the needs of the City? An estimate made of the number of men and women living in the vicinity of the Standard Steel Car Plant, who attend evening school courses, shows that relatively very few were reached. For example, in the general courses 42 women were enrolled, and only two were from this district; and, of an enrollment of 214 women in the household arts course, but two were from this section. In the general courses, the percentage of males from this section was somewhat higher, there being 25 of a total enrollment of 144.

A neighborhood school is necessary to serve the needs of this district. With the adoption of the plan suggested by the Superintendent of Schools to construct a small school in this district, and to incorporate in the building provisions for a social center, the problem of night school work for these people will be greatly simplified. This will be particularly helpful in providing the necessary courses for women and girls in the various

phases of household arts. It is, therefore, recommended that provision be made for building a small school in this district as soon as possible, and that this building contain provisions for a social center and include recreation rooms, kitchen, living room, bed room, sewing room, etc. This building should be the center for the social work of the neighborhood, for district nurses, social workers and others.

When cottages are provided for the household arts work of the elementary schools, these might be used also at night for courses for women of the neighborhood.

Evening School Records. In studying the whole problem of evening school work, the greatest difficulty is in the lack of adequate records of enrollment, attendance, nationality, occupation of students, etc. Simple but comprehensive records of the facts mentioned would afford a basis upon which to determine the exact status of the night school: its efficiency, and its success or failure in meeting the problems of the community, and also be helpful in an occupational study of the city. With the rapid development of night schools in Indiana and their increasing service in real educational work, it is important that there be uniformity in records throughout the State, in order to make possible a comparison of results. It is suggested, that, in the near future, principals of night schools in the State, meet in conference and work out a simple comprehensive record system.

Enrollment and Classification of Students. With 36 night school classes enrolling over 800 students, the problem of enrollment becomes very difficult, yet much of the success depends upon students being placed in the classes best adapted to their needs. Doubtless many men and women apply for night school work who have not decided upon any specific course or line of work, but who seek general improvement. The selection of work best suited to the needs and capacities of such students requires careful consideration. The proper enrollment of a student desiring a specific course, while somewhat simpler, is no less important, for, if he wishes to study arithmetic there may be three or four arithmetic classes, and if he is to receive the maximum return from his attendance and study he must be placed with the class studying the kind of arithmetic he desires, and with a group of students of about the same ability and previous education. Nationality and age must also be considered.

The study of the day employment of the students now in attendance in the Hammond night schools, indicates that perhaps certain shifts in classification would simplify problems of instruction and bring about better results. For example, clerks and mechanics are enrolled, in each of the two arithmetic courses; this is also true of the two classes in commercial arithmetic and in the shop mathematics class. In all of these classes two phases of mathematics are taught, one for the clerks, pertaining to short methods and speed drills; and the other for mechanics, including fractions and decimals, related to industrial work. Much would be gained by grouping together, in one or two classes, the clerks who need commercial arithmetic, and in one of two other classes, the mechanics who need shop mathematics.

The problem of proper enrollment is harder to meet, however, than is usually appreciated, for students come in large numbers on the opening night, and many are entirely unknown to the Principal and teachers. Unlike day school students they bring no record showing age and previous schooling. A teacher, or committee of teachers, might well be assigned to the problem of enrollment, and their work would also have to include some of the elements of vocational guidance.

Methods of Course Organization. No uniform type of course organization and time schedule could be satisfactorily applied to all evening school courses. One course might be scheduled for both terms of the school, another for one term, and still another for but two or three weeks. A course in typewriting, bookkeeping or English for foreigners, would require a continuous session for one or two terms, and, under normal circumstances, breaking such courses into short units, would seriously impair their efficiency. This type of organization is best suited for general continuation courses. On the other hand, however, the trade continuation courses might well be organized upon the short unit basis: for example, punctuation for compositors, plan reading for carpenters, estimating for contractors, pattern draughting for sheet metal workers, all of which are designed to meet some deficiency or special need or interest for those already within a trade.

§ 1. General Courses

From the standpoint of attendance, it would seem that the general courses in English, arithmetic and spelling are properly organized and well taught. These general courses, however, reach but few women, and it is thought their usefulness will be greatly increased with the provision for a night school near the plant of the Standard Steel Car Company. These courses are now being taught upon a two-term basis and this is probably satisfactory.

§ 2. Household Arts Courses

The average holding power of the household arts courses is relatively low, being the lowest in millinery and highest in cooking. It is thought that these modifications in course organization would be productive of good results: the organization of a two-term course in each field and several unit courses in each field. The two-term courses will appeal to those who wish to pursue the subject systematically, and who are so situated as to be able to be in regular attendance for one or two terms; and the short unit courses will appeal to those who wish to pursue special problems for a relatively short period of time.

In detail, this would mean that there might be one or two-term courses in plain sewing, dressmaking, cooking and millinery and several short unit courses in certain phases of these subjects. Additional short unit courses, particularly adapted to the needs of home makers, might well be provided, such as home decoration, care and feeding of children, bread making, pickling, preserving, home nursing, laundry work, textile study, dyeing, cleaning, renovating, fitting and shirt waist making. There is very great need for homemaking courses in the vicinity of the Standard Steel Car Company's plant.

§ 3. Commercial Courses

The average attendance of women in commercial courses is very high, with the exception of commercial arithmetic, which is very low for both men and women. All commercial courses are upon a two-term basis, and this is probably necessary for efficient work in all courses save commercial arithmetic, which might well be upon a short-unit basis. Those commercial students whose needs in arithmetic are not met by the short-unit course, should

enroll in the general arithmetic class. Short-unit continuation courses might profitably be established for salesmen and saleswomen. In determining needs along these lines, conferences with the Clerks' Union would be helpful.

§ 4. Industrial Courses

Woodworking. The present industrial courses are weak because of the lack of a clear definition of purpose and of adaptation to the needs of Hammond. The present woodworking class is composed largely of youths under 16, many of whom attend day schools, and has its justification in affording evening occupational work. This cannot be considered a prevocational or vocational course, but rather a course in manual training. There are, however, a few mechanics enrolled in this course. It is suggested that one general woodworking course be continued, but that in place of the second woodworking course, unit courses be substituted. Attendance in these unit courses should be limited to adults already employed in some phase of woodworking, and these courses should be organized so as to meet specific needs of groups of workers.

Shop Mathematics. It is recommended that the course in shop mathematics be open to only those men actually engaged in industrial pursuits, and that it be organized upon a unit basis, including units such as, mathematics for carpenters, machinists, electricians, contractors, sheet metal workers, etc.

Mechanical Drawing. The work in mechanical drawing, as now organized, meets the needs of young men who need a systematic presentation of the subject. From this standpoint, it is a well designed course. It is advised that this general course be continued and that courses on the unit basis be organized to meet specific needs of groups of workers, such as carpenters, electricians, plumbers, contractors and sheet metal workers.

Electrical Engineering. It is recommended that instead of a general course, aiming to cover in outline the whole field of electricity, a number of unit courses be organized for specific groups of workers: general electricians, electrical device assemblers, armature winders and motor assemblers. There is very great need in Hammond for these courses, as many of the electrical pursuits, such as armature winding and motor assembling, are so specialized that little knowledge is obtained of the whole field and its possibilities.

Other Courses. A study of the Hammond industries has revealed a very definite need for the following trade continuation evening courses:

General machine shop courses for machinists and machinists' helpers engaged in specialized work.

Pattern draughting for tinnerns, sheet metal workers and their helpers.

Electrical theory courses for platers, picklers and electrical devise assemblers.

Industrial chemistry courses for beeker boys.

Color and paint mixing courses for painters and enamellers.

Industrial hygiene for workers in metal trades, painting, finishing, etc.

Some of these courses might be organized upon a short unit basis, for instance, the course—industrial hygiene—might comprise the following units: method of avoiding and curing lead poisoning; methods of treating burns, cuts and sprains; first aid to the injured; use of respirators and how to guard dangerous machines.

PART 5. TEACHERS AND DIRECTOR

Providing buildings and equipment and outlining courses of study will not accomplish the desired ends of prevocational and vocational education without an adequate teaching force, well trained and conversant with the best educational theory and practice. The initial training of most teachers now employed in the elementary schools of the State, is not sufficient to enable them either to understand industrial life or to interpret it to their pupils. Therefore, one problem is to provide the necessary opportunities for continued training while in service.

Teachers Grades 1 to 5. There is everything to be gained and nothing to be lost by continuing the present practice in Hammond of having all industrial and related work in grades one to five inclusive taught by the regular class teachers. Only in this way is it possible to relate such courses in an organic manner to the other work of the school. The wisdom of this plan is demonstrated by the results achieved in the first three grades. In order to properly handle the industrial work, however, grade teachers must not only be skilled in the industrial processes adapted to school room procedure, but must also be familiar with the evolution of industry in all its aspects as well

as present manufacturing methods and industrial problems. To this end, it is recommended that the plans already in operation be continued and extended in order that teachers may become more familiar with the complicated industrial life of the city and the latest methods of elementary industrial instruction. This has been done in the past by factory visits and conference discussions, and might well be enlarged to include lectures, discussions and assigned readings as well as actual manipulative work adapted to school room practice.

Shop Teachers Grades 6 and 7. School trained shop teachers are best adapted to the industrial work of the sixth and seventh grades, provided, however, such teachers have had the opportunity of pursuing courses other than woodworking, and are somewhat familiar with industrial life by a period of actual industrial employment. It is difficult to see how teachers can be helpful in interpreting an industrial situation to boys, if they themselves have never had any first hand industrial experience.

It is strongly urged that definite provisions be made for giving the shop teachers the opportunity of becoming more familiar with the industrial life of the community. This might be done in a number of ways: by releasing them for half a day during one semester for a study of the industries of the city; by providing opportunities for industrial employment during summer vacations; by granting them a few months leave of absence for this purpose; by spending a period of time in social service; by a detailed personal analysis of some industry or some form of industrial "survey work." In short, any method should be encouraged which will result in broadening the actual outlook and vocational skill or familiarity with modern industry.

It is thought that very much would be gained by employing some of the industrial teachers for twelve months in the year in the same manner that agricultural agents are now employed in Indiana. This policy has been partly pursued in times past by employing one manual training teacher for the eight weeks summer session. During the summer, attention could be given to the formation of part time classes or to a study of the work of boys and girls under 16 years of age, or to co-operate supervision of boys and girls working in stores and factories upon working permits. If shop teachers are ever to become familiar with industrial life as it actually exists, and with the means of achieving industrial evolution, they must live with the situation and study it in all its phases.

Household Arts Teachers Grades 6 and 7. School trained teachers are without doubt best adapted for the household arts courses for sixth and seventh grade girls. However, school training is not alone sufficient for the Hammond situation, as women teachers must attempt to interpret the work of the community to girls, just as men teachers must to the boys.

It is strongly advised that some of the household arts teachers be employed for twelve months of the year, and that during the vacation period, they engage in some form of social service, industrial employment or investigation, or in studying the work of girls upon working permits.

Shop Teachers High School. In the main, it is essential in Hammond that shop teachers in the vocation department, be recruited from among the ranks of journeymen workmen. In the event of the employment of such journeymen workmen as teachers, provision must be made for giving them the necessary training in school room procedure and methods of instruction. Such training courses for shop teachers might be in charge of the Director of Vocational Education, or these ends might be accomplished by encouraging such men to attend University Summer Sessions or Extension Courses. For the related vocational courses, such as industrial chemistry, mathematics and mechanical drawing, it is essential that technically trained teachers be employed and that their practical industrial experience be as broad as possible.

Homemaking and Trade Teachers High School. It is thought that the ideal equipment for women teachers of homemaking and trade subjects should include technical and professional training, together with practical or trade experience of the subjects which they teach. Some teachers in this department may have professional training supplemented with trade experience, while others might have successful trade experience supplemented by professional training. There is little hope, however, of establishing a vocational department, which will meet the needs of Hammond girls, with only professionally trained teachers.

Director of Vocational Education. Competent directive leadership is essential in the development of the various phases of the work outlined. It is, therefore, recommended, that a director of vocational education be employed as soon as the services of a competent man may be obtained. The director should have general supervision of all phases of prevocational and vocational

instruction and should work under the direction of the Superintendent and in co-operation with the Primary Supervisor, Art Supervisor, High School Principal and Night School Principal in the development of a scheme of vocational education adapted to the needs of Hammond.

APPENDIX

SOURCES AND METHODS OF DERIVING DATA AND FORMS USED

CHAPTER I. FACTS CONCERNING THE PEOPLE OF HAMMOND

Source: Report of 1910 United States Census

Table

1. Growth of Hammond and Other Cities....Vol. 2, p. 568, 569
2. Composition of Population.....Vol. 2, p. 568, 569
3. Nativity of Population.....Vol. 2, p. 568
4. Age Groups of Population of Hammond...Vol. 1, p. 492,
5. Age Groups of Population of Indiana.....Vol. 1, p. 373
6. Sex Distributions.....Vol. 2, p. 568
7. IlliteracyVol. 2, p. 568, 569

CHAPTER II. THE INDUSTRIES OF HAMMOND

PART 1. IMPORTANCE AND SCOPE OF INDUSTRIES

Sources: Report of the 1910 United States Census, Factory Visits
and Factory Reports.

Table

8. Increase of Workers in Manufacturing
EstablishmentsVol. 9, p. 324, 327
9. Percentage of Population Employed in
Manufacturing EstablishmentsTables 1 and 8
10. Size and Products of Hammond Man-
ufacturing Establishments.....Factory Visits and Reports

PART 2. INDUSTRIAL PURSUITS OF HAMMOND

Sources: Factory Visits and Reports

Methods of Obtaining Facts

A complete list of the manufacturing establishments of Hammond was obtained from the 1913 Report of the State Bureau of Inspection and the classified section of the latest Hammond telephone directory. Arrangements were then perfected for a personal visit to each of the large factories. The Superintendent of Schools telephoned the owner or manager of each plant and briefly explained the nature of work to be done and the day and hour for the visit was agreed upon. No forms were used in obtaining the facts concerning any phase of the factory work, or the number employed in various trades.

The time spent in the plants varied from a few hours to three days. In many cases, factories were visited several times to obtain additional facts or confirm facts previously obtained. Written notes were carefully made of all observations.

In this manner a report from each factory was obtained concerning the following: The Factory organization; departments within the factory; and individuals in each department.

The data regarding the factory organization included:

- Approximate date upon which the factory was opened.
- Whether or not it was permanently located in the city.
- The specific products.
- The dull, normal and busy season.
- Approximate number of male and female wage earners employed in each season.
- Approximate number of male and female wage earners employed at the time of the visit.
- Number of working permit boys and girls, as well as those under 17 years of age, employed at time of visit and at other times.
- Departments in which these boys and girls worked.
- The prevailing nationalities of wage earners.
- The various departments within the factory.
- How workers are recruited for each department.
- Shift of workers from department to department.

The data regarding each department included:

- The number of foremen and forewomen.
- The number of male and female workers.
- Prevailing nationalities.
- The number of working permit boys and girls, those under 17 years of age, and what they were doing.
- The manufacturing processes.
- The materials used.
- The machines used.
- The provision for promoting workers from one job to another.
- The extent to which the department trains the new workers, or promotes upon increased efficiency.
- Provision for shifting workers from one department to another.
- Estimated number who were unable to read or write English or understand verbal orders in English.
- Approximate number enrolled in various night school courses.

The data regarding individual workers included:

- Sex.
- Nationality.
- Age, as to whether or not worker was under 17 years.
- Trade or work in which engaged.
- Whether machine or hand process, description of processes and skill required.

Probable lines of promotion.

Obvious deficiencies in technical or general education affecting efficiency in present work or future promotion.

Specialization of processes, and whether or not the factory was so organized that a young worker could learn a trade.

Obvious hazards to which workers were exposed.

Facts concerning the small tailor shops, job printing shops, plumbing shops, and lumber and planing mills were obtained by a telephone conversation.

After the facts were gathered from all factories, a classification of all workers was made according to sex and trade or pursuit in which engaged. The tables indicating size and products of Hammond establishments, the number and sex of workers in each trade, and the summarized description of the work involved in each trade or pursuit were thus derived.

The approximate number of men and women in trades and pursuits, other than those represented in Hammond manufacturing establishments, was obtained from officials of the local labor unions.

After this Chapter was prepared, typewritten copies were mailed to various manufacturing establishments and to workers with the request that the report be carefully reviewed, noting corrections or additions. Where inaccuracies were noted, necessary corrections were made.

CHAPTER III. WORK OF YOUNG PEOPLE UNDER 17 YEARS OF AGE

PART 1. STUDY OF WORKING PERMITS

Working permit records, made out on the form herein reproduced, were on file in the Superintendent's office. These records indicated the employment in which the boys and girls were engaged.

Employment Ticket

.....
(Location of Office Issuing Certificate)

I intend to employ.....*in the*
(Full Name of Child)

capacity of a.....*in the*
(Name of Occupation)

.....*when*.....
(Industry) (He or She)

presents an age and schooling certificate duly signed.

.....
(Signature of Employer)

.....
(Place of Business)

.....
(Father's Name) (Address)

.....
(Mother's Name) (Address)

.....
(Signature of Child)

Date.....191

In ascertaining the school history of permit boys and girls, reference was made to the files in the Superintendent's office containing individual records of all public school pupils. From these records facts of school proficiency and retardation were obtained. Records were obtained from the form hereafter reproduced.

Hammond Graded Schools

Parent.....		Nationality.....		Student.....		Occupation of Parent.....		Date of Birth.....																								
Residence.....																																
Year	Term	Class	Received From	Promoted To	Transferred To	Date Transfe'd	Date Received	Days Present	Days Absent	Not Enrolled	Times Tardy	Minutes Lost	Arithmetic	Spelling	Reading	Grammar	Language	History	Geography	Physiology	Writing	Drawing	Musie	Science	Effort	Self Control	Gen. Ave.	Teacher	1st Term	Teacher	2nd Term	REMARKS
1	1												D	E	D	E	D	E	D	E	D	E										
	2																															
	1																															
	2																															

(Form 8½"x11" with eight sections similar to 1 and 2 reproduced.)

PART 2. STUDY OF REPORTS MADE OUT BY WORKING BOYS AND GIRLS.

Source: Schedules Made Out by Young People at Work or Their Employers.

A list of all manufacturing and mercantile establishments, hotels, restaurants, etc., was obtained from the latest classified telephone directory. The Superintendent of Schools mailed to each concern the following letter and enclosed sheet, together with a stamped envelope for the reply.

Letter of School Superintendent

In order to adapt the day and evening courses in the Hammond Schools to the needs of the community we are studying the lines of profitable employment open to boys and girls under seventeen years of age. Would you please indicate upon one of the forms below the number employed? Also on the enclosed sheet their names and addresses.

Please return the blanks as soon as possible in the enclosed envelope.

C. M. McDANIEL,
Superintendent of Schools.

Name of Firm?.....

We have in our employ at the present time.....boys
andgirls under 17 years of age (not having reached
their 17th birthday).

Signed.....

Jan., 1915.

We have in our employ at the present time no boys or girls
under 17 years of age (not having reached their 17th birthday).

Signed.....

Jan., 1915.

(Letter and form 8½"x11")

Sheet Enclosed in Superintendent's Letter**Boys and Girls Under 17 Years of Age**

Name of Firm

NAME

ADDRESS

(Blank 8½"x11")

Upon receiving the return statement indicating the number of the boys and girls employed and their addresses, the Superintendent of Schools mailed the following circular letter with enclosed forms, to each establishment having reported boys and girls upon their pay roll.

Superintendent's Letter

Dear Sir: A few days ago you kindly co-operated with the school department by sending me the names and addresses of the young people under 17 in your employ. In order to ascertain the specific work of these young people, the extent of their education, etc., I would greatly appreciate your further co-operation. Will you please have each boy or girl under 17, in your employ, fill out one of the inclosed blanks. This information will materially assist the schools in adapting day and evening courses to the needs of Hammond.

When the cards are properly filled out will you please return them in the inclosed envelope to the school office?

Very truly yours,

C. M. McDANIEL,
Supt. of Schools.

Card Enclosed with Superintendent's Letter

Name.....Sex.....Age: Years.....Mo's.....
 Place of birth: City.....County.....State.....
 Place of Father's birth: City.....County.....State.....
 Place of Mother's birth: City.....County.....State.....
 In what city, town or county did you attend school?.....
 Did you attend a public or parochial school?.....
 What year or month did you leave school? Year.....Month.....
 What school grade did you complete?.....
 In what grade were you enrolled upon leaving school?.....
 What correspondence school course have you studied?.....
 What night school courses have you taken?.....
 Do you draw books from the public library?.....
 By what firm are you now employed?.....
 What is your work with this firm?.....
 What other work have you done with this firm?.....
 How long have you been employed here? Years.....
 Months.....Weeks.....

(Please fill out the other side of this card)

Reverse Side of Card**Previous Employment**

	Name of Firm	Work Done	Time Employed		
			Years	Months	Weeks
1st job upon leaving school					
2nd " " " "					
3rd " " " "					
4th " " " "					
5th " " " "					

(Please fill out the other side of this card)

(Card 5"x8")

The great majority of concerns immediately responded, by having the young people in their employ fill out the cards, and by returning the cards to the Superintendent's office. In the course of two weeks complete records were obtained from all concerns.

CHAPTER IV. PART TIME EDUCATION

The summarized and specific facts in this Chapter were derived from the working permits and individual schedules previously described.

CHAPTER V. THE CHILDREN ENROLLED IN THE HAMMOND SCHOOLS

PART 1. GENERAL FACTS OF ENROLLMENT AND CLASSIFICATION.

Sources: Public Schools—Age and Grade Table: Parochial Schools Age Table.

Two age grade tables for each grade were sent to each public school principal with the following instructions to teachers and principals:

1. List boys and girls in separate tables. Each principal should return to the superintendent two tables—one for boys and one for girls, these two tables being derived from the teacher's tables.

2. Do not record the low or high—a or b—section of any grade in either Elementary or High School; thus, consider 5A and 5B under fifth grade.

3. Estimate age as follows: September 1, 1914 is the date from which age is to be reckoned. Record ages in years on this basis,—12 years, 6 mos. (or less than 6 months)=12 years; 12 years, 7 mos. (or more than 7 months)=13 years.

Age Grade Table

AGES	School Grades													Total All Grades
	KG	1	2	3	4	5	6	7	8	9	10	11	12	
3 and 4.....														
5.....														
6.....														
7.....														
8.....														
9.....														
10.....														
11.....														
12.....														
13.....														
14.....														
15.....														
16.....														
17.....														
18.....														
Over 18.....														
Totals.....														

Retention of public school pupils was estimated by using the largest single age group of boys and girls as the base figures for the respective sexes.

The number and ages of boys and girls in the parochial schools were obtained upon the following form, which the attendance officer personally took to the principal of each school.

Age and Sex Table—Parochial Schools

Name of School.....

Principal.....

AGES	Boys	Girls	Total
3 and 4 yrs.....			
5 yrs.....			
6 yrs.....			
7 yrs.....			
8 yrs.....			
9 yrs.....			
10 yrs.....			
11 yrs.....			
12 yrs.....			
13 yrs.....			
14 yrs.....			
15 yrs.....			
16 yrs.....			
17 yrs.....			
18 yrs.....			
Over 18 yrs.....			
Total.....			

Estimate age from Sept. 1, 1914 as follows:
 12 yrs. 6 months (or less than 6 months)—12 yrs.
 12 yrs. 7 months (or over 7 months)—13 yrs.

PART 2. FACTS CONCERNING 13 AND 14 YEAR OLDS

Source: Schedules Filled Out by Teachers.

The form herein reproduced, with the following instructions, was sent to all teachers:

1. Use a separate card for each pupil.
2. Obtain data requested for all 13 and 14-year-old boys and girls regardless of school grade.
3. Have teacher (not pupil) fill out each card.
4. Be sure that the information is absolutely correct.

Record for Boys and Girls 13 and 14 Years Old (Last Birthday)

Name..... Sex..... Grade..... Age.....
 Place of Birth, City..... State..... County.....
 Place of Father's Birth, City..... State..... County.....
 Father's Occupation*.....
 Place of Mother's Birth, City..... State..... County.....
 Mother's Occupation* (If she works for wages or salary).....

* State, if possible, business as well as occupation: for example, "Clerk in shoe store"; "polisher in instrument factory"; "laborer in car shop."

School..... Teacher.....

(Form 6"x10")

**CHAPTER VI. PRESENT PROVISIONS FOR INDUSTRIAL HOUSEHOLD
 AND ART INSTRUCTION IN THE ELEMENTARY AND HIGH AND
 EVENING SCHOOL.**

Sources: Day Schools.

Course outlines.

Class visits.

Conferences with Superintendent, Supervisors, Principals and Teachers.

Sources: Night School.

Course outlines.

Class visits.

Conferences with Principals and Teachers.

Schedules made out by Teachers.

The form herein reproduced was sent to each night school teacher:

Hammond Night School—First Sheet

Title of Course..... **Teacher**

Nights of Meeting..... **Hours of Meeting**.....

	Total Enrollment		Average Attendance	
	Males	Females	Males	Females
October.....				
November.....				
December.....				
January.....				

Number at Work and Number Attending School During the Day

	November Enrollment		January Enrollment	
	Males	Females	Males	Females
Working for wages.....				
Attending Public School.....				
Attending Parochial School.....				
No. wage earning employment.....				

Estimated Number of Various Age Groups

	November Enrollment		January Enrollment	
	Males	Females	Males	Females
10-13 yrs.....				
14-16 yrs.....				
17-20 yrs.....				
21 and over.....				

Estimated Number Not Born in the United States

November Enrollment	January Enrollment
Males.....	Males.....
Females.....	Females.....

Estimated Number Living in the Vicinity of Standard Car Works

November Enrollment	January Enrollment
Males.....	Males.....
Females.....	Females.....

(Sheet 8½"x14")

Hammond Night School—Second Sheet

Specific occupations of students in the class. Thus, 2 males, skilled electricians—railroad car wiring; 1 male, helper—machine shop; 1 female clerk—ribbon department.

November Enrollment	January Enrollment

Synopsis of the First Semester's Work.

(Sheet 8½"x14")

After the description of the various courses and departments was prepared, typewritten copies were sent to the respective groups of teachers who carefully reviewed them. Conference meetings were then held with each group of teachers and additions and corrections were made in accordance with the facts.

CHAPTER VII. SUGGESTED PROVISIONS FOR ELEMENTARY INDUSTRIAL, PRE-VOCATIONAL AND VOCATIONAL EDUCATION.

Upon the completion of each section of this Chapter, type-written copies were sent to each group of individuals concerned, and, after the sections had been carefully read, discussions and conferences were held. As a result of these conferences, valuable additions to the proposed courses were made. No specific recommendations are incorporated in this Chapter not agreed upon in conference. The proposals, therefore, represent the consensus of opinion of the school staff.

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